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Financial Statement Comparability and the Market Value of Cash Holdings

회계정보의 비교가능성과 기업 보유 현금의 시장가치

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이 논문을 경영학석사 학위논문으로 제출함

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Financial Statement Comparability and the Market Value of Cash Holdings

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ABSTRACT

I investigate the effects of financial statement comparability on the value of cash holdings. Based on a sample of US firms in 1990-2013, I find that firms with comparable financial statement exhibit statistically and economically higher market value for incremental dollar in hand. Further, I find that comparable firms exhibit higher return on asset subsequent to holding and using excess cash than non-comparable counterparts, that comparable firms tend to use cash more in capital expenditure, and that such capital expenditure is more value enhancing. Additionally, the effect of financial statement comparability accentuates during crisis period (2008-2009) compared to non-crisis period (1990-2007, 2010-2013). Overall this study suggests that the financial statement comparability is an important attribute of accounting information that serves to mitigate the free cash flow problem.

Keywords: financial statement comparability, market value of cash holdings, free cash flow problem, agency problem
Data Availability: All data are publicly available from sources identified in the text
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1. INTRODUCTION

Regulators and academics underscores the benefits of comparable accounting information and advocate that accounting information be comparable. The Financial Accounting Standards Board (FASB, 1980) defines comparability as a unique attribute of accounting information that enables decision makers to "identify similarities and differences between two sets of economic phenomena" (FASB paragraphs S12) and states that decision-useful accounting information is comparable. Similarly, in academia, scholars are generally in agreement that there exist merits and benefits of comparable accounting information. For example, prior studies document that financial statement comparability (hereafter comparability) improve the quality of analysts' earnings forecasts (De Franco, Kothari, and Verdi 2011), reduce debt cost of capital (Kim, Kraft, and Ryan 2013), help acquirer make better acquisition decision (Chen, Collins, Kravet, and Mergenthaler 2016), and enhance informativeness of stock prices about future earnings (Choi, Choi, Myers, and Ziebart 2017). These studies, combined together, suggest that comparability reduces information asymmetry among market participants so that they can make more accurate decisions.

Extrapolating from this line of research, I hypothesize and test whether comparable accounting information is also beneficial in mitigating agency problem. In particular, I argue that comparability reduces agency cost associated with cash. Cash and cash equivalent (hereafter cash) is a form of asset that is most highly exposed to agency problem (Jensen 1986; Dittmar, Mahrt-Smith, and Servaes 2003; Dittmar and Mahrt-Smith 2007). Due to its high convertibility, self-interested managers can use cash for their own

benefits without tight scrutiny (Dittmar and Mahrt-Smith 2007), leading to inefficient investment. Jensen (1986) defines such problem as the free cash flow problem: cash excess of that required to fund all projects with positive net present value (NPV) is exposed to agency problem between managers and shareholders. Therefore, investors, aware of the fact, discount the value of excess cash, unless they are convinced that the cash on hand will be utilized for their own benefit, or that the asset is well "fenced in" (Dittmar and Mahrt-Smith 2007; Louis, Sun, and Urcan 2012; Kim, Lee, and Park 2015; Gao and Jia 2016). As a result, the market value of additional dollar in cash is generally less than one dollar (Faulkender and Wang 2006; Dittmar and Mahrt-Smith 2007).

In this paper, I posit that if firms are more comparable to one another, the managers' intention for holding cash will become more transparent. Prior studies suggest comparability reduces information asymmetry among market participants (De Franco et al. 2011; Kim et al. 2013; Chen et al. 2016; Choi et al. 2017). With comparable accounting information, outsiders can make better inference about managerial behavior, reducing managerial incentive for expropriation and mitigating agency problem (Hölmstrom 1979). In such a case, managers are likely to seek more efficient and effective use of cash to prevent any penalty associated with inefficient accumulation or disbursement of cash. Therefore, in equilibrium, cash will be more beneficial to shareholders, and if a firm holds excess cash, there would be legitimate value enhancing reason for it. Consequently, the value of cash holdings will be higher in comparable firms

I empirically examine this prediction with a large sample of 37,995 firm-year observations over the sample period of 1990-2013. I find that the market value of additional dollar is significantly higher for firms that exhibit higher financial reporting

comparability proxied by De Franco et al.'s (2011) measure. Specifically, a transition from the lowest comparability decile to the highest decile corresponds to an increase of about 30 cents in the market value of additional dollar. Consistent with the finding, I also document that comparability is positively associated with the value of *excess* cash.

To shed light on the mechanism that comparability leads to higher market value of cash, I conduct three sets of additional analyses. In these analyses, I examine how the cash of comparable firm is used in firms' operating activities. Employing tests from De Franco et al. (2011) and Denis and Sibilkov (2009), I document (1) that among firms that hold excess cash at time *t and* reduce their cash between year *t* and *t+1* (i.e., spend their cash), comparable firms tend to exhibit higher return on asset (ROA) in year *t+4*, and such effect perpetuates for two fiscal years, (2) that comparable firms tends to exhibit higher capital expenditure sensitivity to cash holdings, (3) and that such capital expenditure is more value enhancing for comparable firms. This set of analyses suggests that comparable firms accumulate and disburse cash in a fashion that is more beneficial to shareholders and that the market anticipating such enhanced value gives premium on the cash holdings.

In further analysis, I document that the effect of financial statement comparability is more pronounced in recent financial crisis period (i.e., 2008 – 2009) than in non-crisis period (i.e., 1990 – 2007 and 2010 – 2013). Prior studies suggest that liquid asset contributes more to firm value during financial crisis, when capital market is not functioning properly, and thus raising capital is costlier (Campello, Graham, and Harvey 2010; Campello, Giambona, Graham, and Harvey 2011). My finding suggests that the effect of comparability on the value of cash holdings accentuates when cash is more valuable to firms, confirming the importance of comparable accounting information.

Additionally, I document that the effect of financial statement comparability is robust to controlling for strength of corporate governance measured by G-Index (Gompers, Ishii, and Metrick 2003), accrual quality by modifed Dechow and Dichev measure (Dechow and Dichev 2001; McNichols 2001), accounting conservatism by ratio of non-operating accruals to total assets cumulated over previous three years (Givoly and Hayn 2000), and alternative measures of comparability (Barth et al. 2012; Choi et al. 2017). In fact, the effect of financial statement comparability on the value of cash holdings is pronounced in firms with strong corporate governance.

I contribute to the literature in several ways. First and foremost, this study provides evidence, albeit indirect, that comparable financial statement generates a benefit in mitigating the free cash flow problem, a typical agency problem that firms face. While prior studies shed light on different benefits of comparability, my finding suggest that comparability plays a role in relieving agency problem. Comparable accounting information facilitates comparison across peers and information transfer across firms such that in equilibrium managers conduct less in managerial misconduct associated with cash. Since Jensen (1986) first proposed the free cash flow problem, academics have sought ways to address and alleviate the problem (Dittmar and Mahrt-Smith 2007; Louis et al. 2012; Kim et al. 2015; Gao and Jia, 2016). I add to this line of research by providing evidence that comparable accounting information facilitates investors to make inference based on peer firm such that managers' incentive for self-interested behavior is reduced, and, as a result, the free cash flow problem is mitigated. Kim, Li, Lu, and Yu (2016) suggest that comparability is effective in mitigating managers' bad-news-hoarding behavior, another form of agency problem. My finding is consistent with this study in that I provide

another benefit of comparable accounting information in agency framework.

Second, I contribute to the literature on the governance role of accounting information. In classical agency framework, the amount of information is directly related to seriousness of moral hazard problem; the more information available, the more effective control mechanism. (Hölmstrom 1979). In similar vein, Bushman and Smith (2001) define the governance role of accounting information as the use of accounting information as an input to governance mechanism that monitors and alleviate agency problem, and call for future research to provide further evidence that accounting information serve such role. My finding responses to this call and provides additional evidence of the governance role of accounting information.

Finally, I add to the line of literature that suggests that comparability is associated with investment efficiency. Chen et al. (2016) suggest that when target firm's financial statement exhibits greater comparability, the acquirer makes better acquisition decision. Related but distinct from such phenomenon, I document that managers of firm with comparable financial statement spend more cash in capital expenditure and that the capital expenditure is more value enhancing. This finding is consistent with the findings of Biddle, Callahan, Hong, and Knowles (2016), which claim that the adoption of International Financial Reporting Standards (IFRS) is associated with improved investment efficiency. My finding, combined with prior studies, suggests that financial statement comparability has real effect in economy.

The remainder of this paper is organized as follows. Section 2 presents the prior literature review and develops my hypothesis. Section 3 is dedicated to my research methodology. Section 4 present my sample and descriptive statistics. Section 5 provides

my empirical results and robustness checks, and Section 6 concludes.

II. PRIOR LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2.1. Financial statement comparability

Both conceptual framework of the Generally Accepted Accounting Principle in the United States (US-GAAP) and IFRS emphasize the importance of comparable information in decision making. The US-GAAP states that comparability, defined as "the quality of information that enables users to identify similarities in and differences between two sets of economic phenomena", is a decision-useful quality of financial reporting information (FASB 1980). The rationale behind such argument is straightforward. Since economic decision, in nature, requires comparison between alternatives, the usefulness of accounting information in different settings - investment, credit, and other resource allocation decision - is inevitably related to comparability of the information (FASB 1980). IFRS underscores the importance of comparable information in similar fashion, saying that comparability along with verifiability, timeliness, and understandability enhances usefulness of accounting information (IFRS 2010). In summary, the accounting information is most likely to be useful for outside investors when it can be easily compared with information pertaining to other entity in the same period or to the same entity in other period (FASB 1980).

Consistent with the emphasis placed by standard setters, researchers have paid attention to implication of financial statement comparability (De Franco et al. 2011; Kim et al. 2013; Chen et al. 2016; Kim et al. 2016). Specifically, employing or modifying a measure put forth by De Franco et al. (2011), prior studies have found (1) that

comparability is positively (negatively) associated with analyst following and forecast accuracy (analysts' dispersion in earnings forecast) (Bradshaw, Miller, and Serafeim 2009; De Franco et al. 2011), (2) that the greater comparability is related to lower estimated bid-ask spreads for traded bonds, lower credit spreads for bonds and five-year CDS, and a steeper one- to five- year CDS term structure (Kim et al. 2013), that (3) in syndicated loan market, comparability is negatively associated with loan spread and the likelihood of pledging collateral, and positively associated with loan maturity and the likelihood of including performance pricing provisions in loan contract (Fang, Li, Xin, and Zhang 2016), (4) that acquirers with higher comparability target firms enjoys higher merger announcement return, higher acquisition synergies, and better future operating performance (Chen et al. 2016), (5) that comparability reduces ex-ante stock price crash risk (Kim et al. 2016), and (6) that comparability improve stock price informativeness about future earnings (Choi et al. 2017). Constant theme of this line of research is that comparability constitutes an important building block of the information environment[1]; investors of the firms with more comparable financial reporting can make more precise inferences about the operating and financing activities of the firm, and thus the value of the firm.

[1] Recent studies also investigate the effect of IFRS adoption as a quasi-experiment that enhances comparability. Some examples of such studies include (1) DeFond, Hu, Fung, and Li (2011), which argue that IFRS adoption increase foreign mutual fund ownership, (2) Ozkan, Singer, and You (201), which argue that the use of relative performance evaluation increases with IFRS adoption, (3) Horton, Serafeim, and Serafeim (2013), which argue that analysts' information environment is enhanced, (4) Barth, Landsman, Lang and Williams (2013), which suggest IFRS adoption increases firm-specific information and stock market liquidity, (5) Biddle et al. (2016), which suggest that IFRS adoption increases investment efficiency, and (6) Young and Zeng (2015), which suggest that accuracy of peer-based valuation increases with IFRS adoption.

2.2. Value of cash holdings

Prior research on the value of an additional cash holdings stresses two opposing forces. On the one hand, one stream of research underscores the relation between the difficulty of external financing and the value of cash holdings. Adopting a perspective that the cash is negative "debt", prior studies suggest that the value of cash holdings is positively related to financial constraint and cost of external financing (Acharya, Almeida, and Campello 2007; Faulkender and Wang 2006; Denis and Sibilkov 2009). Researchers argue that under-investment problem prevails if a firm is under heavy financial constraint, or if the firm faces high external financing cost. In such cases, contribution of additional dollar to the market value of a firm is greater than one dollar, because it allows additional investment, which, otherwise, would have been foregone. Thus, the value of cash holdings is heavily affected by the difficulty of external financing or by cost of capital.

On the other hand, another stream of research relates the value of cash holdings to seriousness of a form of agency problem: the free cash flow problem (Jensen 1986). Cash is a form of asset that is convertible to virtually all other forms of asset, and thus is most at risk of managements' expropriation (Dittmar and Mahrt-Smith 2007). Such rent-extractions by managers may take different forms: inefficient investment such as value decreasing acquisition (Harford 1999), unnecessary diversification (Amihud and Lev 1981), and excess investment in project that requires manager's specific human capital (Shleifer and Vishny 1989). But what these expropriations have in common is that they are value-decreasing expansion of firms' operation, or empire-building activities that increase manager's private benefit (e.g., sphere of control) at the expense of shareholders' value. In addition, falsely satisfied with excess cash on hand, the management may become less

pressured to reduce costs, to improve margins, to closely monitor employees, and to extensively engage in profitable investments (Harford 1999; Dittmar and Mahrt-Smith 2007). In either cases, the implication for the market valuation of additional dollar is identical: a dollar in a firm is worth less than a dollar to outside investors.

Sharing a concern that the free cash flow problem is detrimental to shareholder value, prior studies look for mechanisms that can mitigate the problem. Dittmar and Mahrt-Smith (2007) examines whether a firm with better corporate governance mechanism has a better protection against managerial appropriation or inefficiency. They document that properly governed firms enjoy more than double the value of a dollar compared to firms with poor corporate governance mechanism. Probing the same research question in cross-country setting, Pinkowitz, Stulz, and Williamson (2006) document that firms located in countries with poor investor protection exhibit a significantly lower value of cash holdings than firms located in countries with strong investor protection.

Accounting researchers also start to look into the issue by investigating the role of accounting information in mitigating the problem. Extrapolating from prior literature on accounting conservatism and financial reporting quality that investigate roles of such attributes in agency framework, Louis et al. (2012) and Sun, Yung, and Rahman (2012) find that accounting conservatism and financial reporting quality are positively related to the value of cash holdings. Other studies also relate internal and external monitoring on financial reporting process and the value of cash holdings. (Gao and Jia 2016; Kim et al. 2015).

2.3. Relation between financial statement comparability and the value of cash holdings

Extrapolating from prior literature, I try to fill in the missing link between the financial statement comparability and the value of cash holdings. Unlike the extensive attention on the relation between value of cash holdings and other proxies for the quality of accounting information, the relation between the financial statement comparability and the value of cash holdings is unexplored. In fact, there exist only a few findings that support the effectiveness of comparability in agency framework (Kim et al. 2016; Fang et al. 2016).

In theoretical perspective, there are reasons to believe that comparable accounting information is effective in mitigating agency problem, and in particular the free cash flow problem. With comparable accounting information, market participants, such as analysts and investors, are in better positions to identify similarities and differences between peer firms. That is, if accounting information is comparable, then the information processing and acquisition cost for market participants are substantially reduced (De Franco et al. 2011), such that the information, market participants can engage in effective monitoring. In particular, they can closely monitor a firm's intention for holding cash by comparing the level of cash and operating/investing activities of the firm with its peers. It will be clearer whether the accumulation of cash or expenditure of cash is for manager's private rent-seeking purpose or for the benefit of shareholders. Additionally, with comparable accounting information, market participants better understand the operating activities of a firm, and thus in better positions to predict the firm's future profitability precisely (Choi et al. 2017). For example, De Franco et al. (2011) suggest that analysts forecast is more accurate when accounting information is comparable. This will help analysts evaluate the

profitability of the investment that a firm is currently undertaking and will undertake in the future.[2] In summary, with comparable accounting information, market participants (1) better determine whether the intention for holding cash is justifiable and (2) better evaluate whether existing and imminent investment project, in which current cash holdings are expected to be used, are profitable. The managers, aware of such tight scrutiny, will behave accordingly. They will be deterred from over-investment problem that Jensen (1986) suggest, and will be cautious and efficient in picking investment project, as opposed to falsely satisfied and less pressured for efficiency, a phenomenon that Harford (1999) and Dittmar and Mahrt-Smith (2007) document. Therefore, in equilibrium, cash holdings of comparable firms will be more beneficial to shareholders, and consequently shareholders will place more value to cash on hand.[3]

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[2] Note that NPV of an investment project requires projection, or forecast, of future cash flow, or alternatively projection, or forecast, of earnings, if residual income model is used (Ohlson 1995). Therefore, with better prediction of earnings, profitability of an investment project can be better evaluated.

[3] However, as the value of cash holdings is also a function of the cost of capital, one cannot unambiguously predict the overall effect of the comparability on the value of cash holdings to the extent that the comparability affects the cost of debt capital (Kim et al. 2013; Fang et al. 2016). Faulkender and Wang (2006) argue that the value of cash holdings is sensitive to cost of external financing. In imperfect market, cash plays a role as a buffer in external financing. Given abundant cash in hand, a firm doesn't have to incur transaction cost to invest in positive NPV projects; it can invest with the cash in hand immediately. But this comes at a cost of foregoing interest that could otherwise be earned. Thus, the firm, without agency problem, will only choose to hold additional cash only when external financing is sufficiently expensive (Opler et al. 1999). This implies that the higher (the lower) the cost of capital, the greater (smaller) the importance of cash at hand. To the extent that higher comparability facilitates provision of information in debt market and reduces cost of external financing (Kim et al. 2013; Fang et al. 2016), the value of cash holdings may be negatively associated with a firm becomes more comparable. I do not develop this prediction as an alternative hypothesis because there is a lot more prior literature that support the prediction based on the agency framework. My empirical findings also do not support this prediction.

H1: The financial statement comparability is positively related to the value of cash holdings.

3. RESEARCH DESIGN

3.1. Measuring financial statement comparability

De Franco et al. (2011) argue that accounting system is a mapping from economic event to financial statement and that comparability is defined as the closeness of these mappings between two firms, given an economic event. Exploiting the idea, De Franco et al. (2011) develop an empirical measure of financial statement comparability. In this paper, I follow De Franco et al. (2011) and use their measure. In particular, I first run time-serious regression using firm *i*'s 16 previous quarterly earnings and stock return:

$$Earnings_{i,t} = \alpha_i + \beta_i Return_{i,t} + \varepsilon_{i,t} \quad (1)$$

where $Earnings_{i,t}$ is the quarterly net income before extraordinary item deflated by the market value of equity at the beginning of the quarter and $Return_{i,t}$ is stock return over the quarter. The estimated intercept ($\widehat{\alpha_i}$) and coefficient ($\widehat{\beta_i}$) from equation (1) proxy for firm *i*'s accounting system. Likewise, I compute accounting system for firm *j* in the same two-digit SIC classification. To measure the closeness between these two accounting systems, I take the economic event of firm *i* (i.e., $Return_{i,t}$) as given and compute the expected earnings from each accounting systems (i.e., that of firm *i* and firm *j*) for previous 16 quarters:

$$E(Earnings)_{i,i,t} = \widehat{\alpha_i} + \widehat{\beta_i} Return_{i,t} \quad (2)$$

$$E(Earnings)_{i,j,t} = \widehat{\alpha_j} + \widehat{\beta_j} Return_{i,t} \quad (3)$$

The pairwise closeness (i.e., comparability score) between firm *i*'s and firm *j*'s accounting mappings given firm *i*'s economic event is measured as the negative one (-1) times average of the difference between expected earnings given firm *i*'s return over previous 16 quarters:

$$CompAcct_{i,j,t} = -\frac{1}{16}\sum_{t-15}^{t} |E\,E(Earnings)_{i,i,t} - E(Earnings)_{i,j,t}| \quad (4)$$

The firm-level comparability of firm *i* in year *t* is measured as, (1) the median $CompAcct_{i,j,t}$ of all possible combination with firm *i* within the same two-digit SIC classification ($CompAcctIndmed_{i,t}$), (2) the average $CompAcct_{i,j,t}$ of all possible combination with firm *i* within the same two-digit SIC classification ($CompAcctIndavg_{i,t}$), and (3) the average $CompAcct_{i,j,t}$ of four closest firm *j*'s in the same two-digit SIC classification ($CompAcct4_{i,t}$).

Consistent with Chen et al. (2014) and Kim et al. (2016), I convert comparability measures into deciles and then normalized them so that they range between [0, 1] to address potential non-linearity and noise and to facilitate economic interpretation.[4]

3.2. Assessing the market value of cash holdings[5]

Faulkender and Wang (2006) document that the value of additional dollar in cash is related to a number of factors. My hypothesis suggest that the value of cash holdings vary with

[4] My results are robust to using continuous measures of comparability.

[5] Prior studies on value of cash uses extended Fama and French (1998) specification to estimate the value of cash (Pinkowitz and Williamson 2004; Pinkowitz, Stulz, and Williamsom 2006; Gao and Jia 2016). However, Dittmar and Mahrt-Smith (2009) suggest that the specification suffers from potential endogeneity problem as the level of cash is endogenously determined with the Market-to-book ratio, which is correlated with investment opportunities. In light of the criticism, I use Dittmar and Mahrt-Smith (2009) model and use the extended Fama and French (1998) model to estimate the value of *excess* cash.

the level of comparability. I, accordingly, employ Faulkender and Wang (2006) model and extend it by including comparability measures (i.e., $CompAcctIndmed_{i,t}$, $CompAcctIndavg_{i,t}$, and $CompAcct4_{i,t}$**)** and its interaction term with change in cash ($\frac{\Delta C_{i,t}}{M_{i,t-1}}$) . Specifically, I employ the following regression model:

$$r_{i,t} - R^{B}_{i,t} = \alpha_0 + \alpha_1 \times \frac{\Delta C_{i,t}}{M_{i,t-1}} + \alpha_2 \times \frac{\Delta E_{i,t}}{M_{i,t-1}} + \alpha_3 \times \frac{\Delta NA_{i,t}}{M_{i,t-1}} + \alpha_4 \times \frac{\Delta RD_{i,t}}{M_{i,t-1}} \quad (5)$$

$$+\alpha_5 \times \frac{\Delta I_{i,t}}{M_{i,t-1}} + \alpha_6 \times \frac{\Delta D_{i,t}}{M_{i,t-1}} + \alpha_7 \times \frac{C_{i,t-1}}{M_{i,t-1}} + \alpha_8 \times L_{i,t} + \alpha_9 \times \frac{NF_{i,t}}{M_{i,t-1}}$$

$$+\alpha_{10} \times \frac{C_{i,t}}{M_{i,t-1}} \times \frac{\Delta C_{i,t}}{M_{i,t-1}} + \alpha_{11} \times L_{i,t} \times \frac{\Delta C_{i,t}}{M_{i,t-1}} + \alpha_{12} \times COMPACCT_{i,t}$$

$$+\alpha_{13} \times COMPACCT_{i,t} \times \frac{\Delta C_{i,t}}{M_{i,t-1}} + Fixed\ Effects + \varepsilon_{i,t}$$

where for firm *i* in year *t,*[6]

$COMPACCT_{i,t}$ = Financial statement comparability, measured using either $CompAcctIndmed_{it}$, $CompAcctIndavg_{it}$, or $CompAcct4_{it}$. Comparability measures are decile-ranked and normalized to range between [0, 1]

Control Variable = Change in cash ($\Delta C_{i,t}$), change in earnings ($\Delta E_{i,t}$), change in total asset net of cash ($\Delta NA_{i,t}$), change in R&D expenditure ($\Delta RD_{i,t}$), change in interest expense ($\Delta I_{i,t}$), change in common dividend ($\Delta D_{i,t}$), cash balance at the end of the previous year ($C_{i,t-1}$), new finance from year *t-1* to year t ($NF_{i,t}$), and interaction terms of lagged cash and leverage with change in cash ($C_{i,t} \times \Delta C_{i,t}$, and

[6] Throughout the paper, year means fiscal year.

		$L_{i,t}\times\Delta C_{i,t}$), all deflated by market value of firm at year *t-1* ($M_{i,t-1}$) except for leverage
$r_{i,t} - R^{B}_{i,t}$	=	Annual excess return measured over 12-month period ending three months after the fiscal year-end minus benchmark portfolio return during the same period. The benchmark portfolio return is measured by the equally weighted average return of Fama and French's (1993) 25 size and book-to-market portfolio

Detailed definitions of variables are to be found in the appendix.

Equation (5) estimates the stock market reaction to unexpected changes in cash holdings during a year (Faulkender and Wang 2006). This is because the expected cash level in year *t* is assumed to be the cash level in the previous year. Note that all the independent variables are deflated by the lagged market value of equity. Thus, the coefficient on change in cash ($\frac{\Delta C_{i,t}}{M_{i,t-1}}$) can be interpreted as the change in the market value of equity associated with an (unexpected) extra dollar increase in cash holdings, or alternatively, marginal market value of cash. Faulkender and Wang (2006) add other explanatory variables to control for a firm's characteristics that have effects on the value of cash: characteristics associated with operating, investing, and financing activities.

The interaction terms capture the variables that affect the value of cash holdings. Faulkender and Wang (2006) find that the market value of cash decreases with current cash level and with financial leverage. That is, the value that an incremental dollar creates decreases as the seriousness of underinvestment problem declines.

My hypothesis predicts that the coefficient on the interaction term between De Franco et al.'s (2011) comparability measures and the change in cash (α_{13}) are positive

and statistically significant.[7] That is, the higher the comparability, the greater the contribution of additional dollar on hand.

In all of the regression analyses, I wisorize each continuous variable at the 1st and 99th percentile to address potential problem that extreme outliers may bring.

4. SAMPLE AND DATA

4.1. Sample selection

My sample includes firm-year observations during the period 1990 -2013. I obtain financial statement data from COMPUSTAT and security price data from Center for Research in Security Prices (CRSP). Following Faulkender and Wang (2006), I exclude financial firms and utility firms (SIC codes between 6000 and 6999 and between 4900 and 4999, respectively). I also excluded firm-year observations that show negative market value of equity and negative total asset net of cash. Following De Franco et al. (2011), I restrict each firm-year observation to have at least 10 pairs in two-digit SIC code industries to compute the comparability measures. I also delete top and bottom 1 percent from comparability distribution consistent with prior studies on comparability (De Franco et al. 2011; Choi et al. 2017). Finally, I exclude firm-year observation that doesn't have requisite regression variables.

[7] As articulated, the comparability may reduce the debt cost of capital, which is positively associated with the value of cash. In such case, the coefficient on the interaction term (α_{13}) will be positive only if comparability is effective in mitigating the free cash flow problem and such effect is greater than the effect of comparability in reducing cost of debt capital. On the other hand, if comparability is not effective mechanism in mitigating the free cash flow problem, or if the effect is smaller than the effect of comparability on reducing cost of debt capital, then the coefficient (α_{13}) will be negative and statistically significant.

4.2. Descriptive statistics

Table 1, Panel A provides summary statistics for variables used throughout my paper. The distributions of main variables are consistent with prior studies (Faulkender and Wang 2006; De Franco et al. 2007; Louis et al. 2012; Kim et al. 2015; Choi et al. 2017). The average excess (raw) return is 0.9% (19.1%) whereas median is -7.2% (7.0%), which is consistent with Louis et al.'s (2012) descriptive statistics. The average of annual excess return is close to zero as it is defined as raw return excess of Fama and French (1993) benchmark portfolio. The mean (median) values of De Franco et al.'s (2011) comparability measures (i.e., $CompAcctIndmed_{i,t}$, $CompAcctIndavg_{i,t}$, and $CompAcct4_{i,t}$) are -2.734, -3.508, and -0.741, respectively. The distribution of each of the comparability measures are negatively skewed, consistent with De Franco et al. (2011). Average change in cash and earnings are, albeit small in magnitude, positive consistent with the prior studies' finding that firms tend to increase their cash holdings over time and that firms' performances improve over time. Table 1, Panel B provides distribution of my firm-year observations over fiscal years. It shows that my sample is fairly uniformly distributed over time, alleviating a concern that year effect is driving the result.

[Insert Table 1 about here]

Table 2 provides Pearson and Spearman correlation matrix. Consistent with prior studies (De Franco et al. 2011; Choi et al. 2017), the comparability measures are highly correlated to one another, confirming that they are conceptually capturing the same effect. Additionally, comparability measures are highly correlated with other explanatory

variables. Thus, omission of comparability measure may introduce the correlated omitted variable problem.

[Insert Table 2 about here]

5. EMPIRICAL RESULT

Throughout this paper, I employ robust regression, cluster standard errors at firm level, and introduce industry and year fixed effects (Petersen 2009; Gow, Ormazabal, and Taylor 2010).

5.1. Financial statement comparability and the value of cash holdings

Table 3 presents the regression result for equation (5). As a benchmark, the column (1) of table 3 presents replication of Faulkender and Wang (2006). Consistent with their finding, a (unexpected) change of a dollar in cash is associated with approximately a dollar change in market value. On average a dollar increase in cash is associated with $1.001 in market value of cash, *ceteris paribus*. Consistent with Faulkender and Wang (2006), my sample confirm that the marginal value of cash is *negatively* associated with both the level of cash (-0.443) and leverage (-0.635) and that the associations are economically and statistically significant. These findings are consistent with the facts that firms with lower cash level benefit more from additional dollar as they are more severely subject to underinvestment problem and that debt holders receive some of the benefit associated with a dollar increase in cash.

[Insert Table 3 about here]

Column (2) to Colum (4) presents the main empirical analyses. Each column respectively report the impact of comparability, as measured by $CompAcctIndmed_{i,t}$, $CompAcctIndavg_{i,t}$, and $CompAcct4_{i,t}$, on the market value of cash holdings. The coefficients for control variables are very similar to those of Faulkender and Wang (2006) and Kim et al. (2015). Annual excess return is negatively related to (1) change in R&D expenditures, (2) change in interest expenses, (3) leverage ratio, (4) net financing, and (5) the interaction between leverage and change in cash; annual excess return is positively related to (1) earnings, (2) change in noncash asset, (3) and lagged cash holdings.

Consistent with the prediction, the coefficients on $COMPACCT_{i,t} \times \frac{\Delta C_{i,t}}{M_{i,t-1}}$ are positive and statistically significant, suggesting that market put a premium on the value of cash holdings with comparable accounting information. Specifically, the magnitude (t-value) of coefficients on $COMPACCT_{i,t} \times \frac{\Delta C_{i,t}}{M_{i,t-1}}$, when comparability is measured by $CompAcctIndmed_{i,t}$, $CompAcctIndavg_{i,t}$, and $CompAcct4_{i,t}$ are 0.331 (4.03), 0.272 (3.64), and 0.339 (4.09) respectively. As comparability measures are ranked into deciles in my regression analyses, a useful economic interpretation follows: as a firm makes transition from the lowest comparability decile to the highest comparability decile, the market value of additional dollar in cash increases by 30 cents. The magnitude of the coefficient suggests that the impact of comparability on the value of cash holdings is not only statistically significant but also economically significant. *Ceteris Paribus*, comparable firms enjoy 30% premium for additional cash on hand, compared to their non-

comparable peers.

5.2. Financial statement comparability and the value of *excess* cash

Prior literature on value of cash also underscores the value of *excess* cash (Dittmar and Mahrt-Smith 2006; Gao and Jia 2016). It is interesting to see the value implication of excess cash in addition to value of cash holdings, because the free cash flow problem suggests that the agency problem is severe with *the free cash flow*: cash that is in excess of the level needed for operation and investment. Thus, if relation between comparability and the value of cash holdings is attributable to mitigation of the free cash flow problem, then one should expect accentuated effect with excess cash. I follow prior studies and define excess cash as cash reserve that is in excess of *normal* operation and investment (Dittmar and Mahrt-Smith 2007). If comparable accounting information helps market participants conduct effective monitoring on the cash management of a firm, then the managers will, in equilibrium, hold *excess* cash only when there exist legitimate reasons (e.g., value enhancing major investment) for it. Therefore, in equilibrium, the market valuation of *excess* cash should be higher for comparable firms.

As prior value of cash studies suggest modified Fama and French (1998) model to estimate the value of *excess* cash (Dittmar and Mahrt-Smith 2006; Gao and Jia 2016), I regress firm value on the level of cash and control variables that capture other sources of firm value:

$$\frac{MV_{i,t}}{NA_{i,t-1}} = \alpha_0 + \alpha_1 \times \frac{E_{i,t}}{NA_{i,t-1}} + \alpha_2 \times \frac{dE_{i,t}}{NA_{i,t-1}} + \alpha_3 \times \frac{dE_{i,t+2}}{NA_{i,t-1}} + \alpha_4 \times \frac{RD_{i,t}}{NA_{i,t-1}} \quad (6)$$

$$+\alpha_5\times\frac{dRD_{i,t}}{NA_{i,t-1}}+\alpha_6\times\frac{dRD_{i,t+2}}{NA_{i,t-1}}+\alpha_7\times\frac{D_{i,t}}{NA_{i,t-1}}+\alpha_8\times\frac{dD_{i,t}}{NA_{i,t-1}}$$

$$+\alpha_9\times\frac{dD_{i,t+2}}{NA_{i,t-1}}+\alpha_{10}\times\frac{I_{i,t}}{NA_{i,t-1}}+\alpha_{11}\times\frac{dI_{i,t}}{NA_{i,t-1}}+\alpha_{12}\times\frac{dI_{i,t+1}}{NA_{i,t-1}}$$

$$+\alpha_{13}\times\frac{dNA_{i,t}}{NA_{i,t-1}}+\alpha_{14}\times\frac{dNA_{i,t+2}}{NA_{i,t-1}}+\alpha_{15}\times\frac{dMV_{i,t+2}}{NA_{i,t-1}}$$

$$+\alpha_{16}\times\frac{XC_{i,t}}{NA_{i,t-1}}+\alpha_{17}\times COMPACCT_{i,t}+\alpha_{18}\times COMPACCT_{i,t}\times\frac{XC_{i,t}}{NA_{i,t-1}}$$

$$+Fixed\ Effects+\varepsilon_{i,t}$$

where for firm *i* in year *t*, $dX_{i,t}$ indicate a change in *X* from year *t-2* to *t,*

$COMPACCT_{i,t}$ = Financial statement comparability, measured using either $CompAcctIndmed_{i,t}$, $CompAcctIndavg_{i,t}$, or $CompAcct4_{i,t}$. Comparability measures are decile-ranked and normalized to range between [0, 1]

$MV_{i,t}$ = Market value of equity, deflated by total asset net of cash (i.e., market-to-book ratio) as a measure of firm value

$NA_{i,t}$ = Asset net of cash

Control Variable = Earnings before extraordinary items ($E_{i,t}$) from year *t-1* to year t, R&D expenses, set to zero if missing($RD_{i,t}$), common dividends from year *t-1* to year t ($D_{i,t}$), interest expense ($I_{i,t}$) from year *t-1* to year t, and their lead and lag changes ($dX_{i,t}$, $dX_{i,t+2}$), deflated by total asset net of cash ($NA_{i,t}$)

$XC_{i,t}$ = Excess cash defined as cash minus normal cash, which is to be explained below

Here, control variables capture and control for market participants' expectations about future net cash flows (Dittmar and Mahrt-Smith 2007; Gao and Jia 2016).

Specifically, (1) earnings ($E_{i,t}$) and lead and lag changes in earnings capture profitability and expected growth in profitability, (2) research and development expenditure ($RD_{i,t}$) and corresponding lead and lag changes control for expected growth in profitability stemming from research and development, (3) lead and lag change in asset net of cash ($dNA_{i,t}, and\ dNA_{i,t+2}$) capture contribution of net asset to market value, (4) common dividend ($D_{i,t}$) and interest expense ($I_{i,t}$) and their corresponding lead and lag changes capture change in firms' financing policy, and (5) future change in market value ($dMV_{i,t+2}$) capture other future changes of unexpected components of earnings, net assets, and other financial statement variables. To control for macroeconomic factors and industry factors that affect firm value, I also include year fixed effects and industry fixed effects using Fama and French (1997) 48-industry classification.

Consistent with Dittmar and Mahrt-Smith (2007), I estimate the regression (6) on all firms with *positive* excess cash.[8] Excess cash is defined as cash in excess of normal operating and investing activities. Specifically, excess cash is residual from the following normal cash level regression, which control for genuine motives of holding cash such as hedging purpose, growth options, and restrictions on financing (Opler, Pinkowitz, Stulz, and Williamson 1999; Dittmar and Mahrt-Smith 2007):

$$Ln\left(1+\frac{C_{i,t}}{NA_{i,t-1}}\right) = \alpha_0 + \alpha_1 \times Ln\left(NA_{i,t}\right) + \alpha_2 \times \frac{FCF_{i,t}}{NA_{i,t-1}} + \alpha_3 \times \frac{NWC_{i,t}}{NA_{i,t-1}} \quad (7)$$

[8] Dittmar and Mahrt-Smith (2007) focus on positive excess cash subgroup, because their hypotheses concern the effect of governance on the value and use of cash that is *not* needed for operation and investment activities

$$+\alpha_4\times(\text{Industrysigma})_{i,t} + \alpha_5\times\left(\frac{\widehat{MV_{i,t}}}{NA_{i,t-1}}\right) + \alpha_6\times\frac{RD_{i,t}}{NA_{i,t-1}}$$

$$+Fixed\ Effects + \varepsilon_{i,t}$$

where for firm *i* in year *t*,

$NA_{i,t}$	=	Asset net of cash
$FCF_{i,t}$	=	Operating Income minus Interest minus Taxes (free cash flow)
$NWC_{i,t}$	=	Current Asset minus current liabilities minus cash (net working capital)
$IndustrySigma_{i,t}$	=	Industry average of prior 3 year standard deviation of $FCF_{i,t}$/$\text{NA}_{i,t}$
$RD_{i,t}$	=	R&D expenditures, set to zero if missing
$\widehat{MV_{i,t}}$	=	Market-to-book ratio, instrumented using past three-year sales growth

I predict that the coefficients on the interaction term between De Franco et al.'s (2011) comparability measures and excess cash (α_{18}) are positive and statistically significant.[9] That is, value of *excess* cash is higher in comparable firms.

Table 4 reports the regression result for equation (6). As specified, for this analysis, I limit my attention to firms that exhibit positive *excess* cash in year *t*. Thus, the sample size is reduced to 12,809 firm-year observations. Consistent with my prediction,

[9] As articulated, the comparability may reduce the debt cost of capital, which is positively associated with the value of cash. In such case, the coefficient (α_{19}) will be positive only if comparability mitigates the free cash flow problem and such effect is greater than the effect of comparability on reducing cost of debt capital. On the other hand, if comparability is not effective mechanism in mitigating the free cash flow problem, or if the effect is smaller than the effect of comparability on reducing cost of debt capital, then the coefficient (α_{18}) will be negative and statistically significant.

the coefficients of $COMPACCT_{i,t} \times \frac{XC_{i,t}}{NA_{i,t-1}}$ are positive and statistically significant. Specifically, the magnitude (t-value) of coefficients on $COMPACCT_{i,t} \times \frac{XC_{i,t}}{NA_{i,t-1}}$, when comparability is measured by $CompAcctIndmed_{i,t}$, $CompAcctIndavg_{i,t}$, and $CompAcct4_{i,t}$ are 1.334 (6.54), 0.439 (2.90), and 1.380 (8.35) respectively. The magnitudes of the coefficients are also economically significant, suggesting that comparability meaningfully increases the value of *excess* cash as well as the value of cash holdings.

[Insert Table 4 about here]

5.3. The effect of comparability on the relation between use of excess cash and future profitability

To shed light on the whether effects of comparability on the value of cash holdings and *excess* cash are due to mitigation of the free cash flow problem, I conduct additional analysis to examine whether financial statement comparability brings real effect in comparable firms.

I argue that if comparability really induces firms to manage cash on shareholders' behalf, and if the documented increase in market value of cash is due to such an efficient management of cash, then there should also be positive effect of comparability on efficiency of *cash expenditure*. That is, I argue that there are benefits of holding cash when external financing is costly, and that if comparability truly facilitates effective monitoring on manager's cash management, then the cash expenditure should only occur when it is sufficiently beneficial to shareholders. In particular, as the agency problem is most severe

with the *free cash flow*, I suggest that the expenditure of *excess* cash (i.e., investment) should have different consequences for comparable firms and non-comparable firms.

One particular consequence that I consider is the profitability in subsequent period after cash expenditure. As my definition of normal cash takes into account the normal and anticipated course of operation such as hedging purpose, growth options, and restrictions on financing, the holding and use of *excess cash* can be interpreted as unanticipated investments. If the managers efficiently use their *excess cash*, or conduct unanticipated investments efficiently, then the expenditure should bring benefits to shareholder in terms of improved profitability in subsequent period; otherwise it should have been paid back to the shareholders in a form of dividend. Thus, the effect of use of excess cash on future profitability provide useful setting to test whether the free cash flow problem has been mitigated in comparable firms.

To investigate the efficiency of *excess cash expenditure*, I analyze firms that have excess cash in year *t and* use their cash from year *t* to year *t+1*. Should comparability mitigate the agency problem, then comparable firms would experience higher profitability (i.e., return on asset) in subsequent years than non-comparable peers (Dittmar and Mahrt-Smith 2007). Specifically, I conduct following regression analysis on sub-sample of firms that (1) have excess cash in year *t* (i.e., $XC_{i,t} > 0$), *and* (2) spend their cash (i.e., $\Delta C_{i,t+1} < 0$) from year *t* to year *t+1* and examine whether there exist differential consequences of *excess cash expenditure* for comparable firms and non-comparable firms.

$$\text{ADJ\_ROA}_{i,t+k} = \alpha_0 + \alpha_1 \times \frac{\Delta C_{i,t+1}}{NA_{i,t}} + \alpha_2 \times \frac{XC_{i,t}}{NA_{i,t-1}} + \alpha_3 \times COMPACCT_{i,t} \quad (8)$$

$$+\alpha_4 \times COMPACCT_{i,t} \times \frac{\Delta C_{i,t+1}}{NA_{i,t}} + \alpha_5 \times Ln(NA_{i,t})$$

$$+\alpha_6 \times \frac{PPE_{i,t}}{NA_{i,t-1}} + \alpha_6 \times \text{ADJ\_ROA}_{i,t} + Fixed\ Effects + \varepsilon_{i,t}$$

where for firm *i* in year *t*,

$COMPACCT_{i,t}$ = Financial statement comparability, measured using either $CompAcctIndmed_{i,t}$, $CompAcctIndavg_{i,t}$, or $CompAcct4_{i,t}$. Comparability measures are decile-ranked and normalized to range between [0, 1]

$\text{ADJ\_ROA}_{i,t}$ = Operating income before depreciation (ROA) minus industry average operating income before depreciation (Industry-average ROA). Fama-French 48 Industry classification is used to estimate industry- average ROA.

$NA_{i,t}$ = Asset net of cash

$\Delta C_{i,t+1}$ = Change in cash from year *t* to year *t+1*.

$XC_{i,t}$ = Excess cash, defined as cash minus normal cash, where normal cash is defined as above

$Ln(NA_{i,t})$ = Natural logarithm of total asset net of cash

$PPE_{i,t}$ = Total property plant and equipment

Equation (8) estimates the effect of using *excess* cash in year *t* on industry-adjusted return on asset ($\text{ADJ\_ROA}_{i,t+k}$) in year *t+k*. As it takes time for use of cash to materialize in the form of improved profitability, I investigated the effect on industry adjusted return on asset in year *t+k* ($\text{ADJ\_ROA}_{i,t+k}$) as opposed to contemporaneous industry-adjusted return on asset. As I only limit my attention to those firms that (1) have positive excess cash in year *t* (i.e., $XCash_{i,t} > 0$) *and* (2) spend their cash (i.e., $\Delta C_{i,t+1} < 0$),

a positive (negative) coefficient on $\frac{\Delta C_{i,t+1}}{NA_{i,t}}$ represents deterioration (improvement) of future industry-adjusted return on asset proportional to the use of *excess* cash. To investigate the effect of comparability on the relation between use of *excess* cash in year *t* and future profitability, I introduce an interaction term between change in cash and comparability measure (i.e., $COMPACCT_{i,t} \times \frac{\Delta C_{i,t+1}}{NA_{i,t}}$). As I decile-ranked and rescaled comparability measures to range between [0, 1], coefficients on $\frac{\Delta C_{i,t+1}}{NA_{i,t}}$ reflect deterioration (improvement) of industry-adjusted return on asset in subsequent period for firms in the lowest comparability decile as they spend cash; the coefficients on $COMPACCT_{i,t} \times \frac{\Delta C_{i,t+1}}{NA_{i,t}}$ reflect differential effect of use of excess cash on industry adjusted return on asset for firms that are in the highest comparability decile. I expect that comparable firms are more efficient in their cash expenditure such that additional cash expenditure contributes more to the future industry-adjusted return on asset ($\text{ADJ\_ROA}_{i,t+k}$) (i.e., negative coefficient for $COMPACCT_{i,t} \times \frac{\Delta C_{i,t+1}}{NA_{i,t}}$) than cash expenditure of non-comparable firms do to their future industry-adjusted return on asset. As industry adjusted ROA is likely affected by (1) current total asset net of cash, (2) current excess cash level, (3) current PP&E level, and (4) current industry adjusted ROA, I control for these variables (Dittmar and Mahrt-Smith 2007).

Table 5 reports the regression result for equation (8). Panel A reports the effect of use of excess on industry-adjusted return on asset in year *t+4*. The coefficients on $\frac{\Delta C_{i,t+1}}{NA_{i,t}}$ are positive and statistically significant. Since both the dependent variable and the independent variables are deflated by total asset net of cash, the coefficients can be

interpreted as an impact of spending a dollar on future industry-adjusted return on asset. The magnitude (t-value) of coefficients on $\frac{\Delta C_{i,t+1}}{NA_{i,t}}$ are 0.127 (7.14), 0.130 (6.81), and 0.093 (5.39) respectively, suggesting that a dollar spent in year *t* is associated with deterioration of industry-adjusted return on asset in year *t+4* by roughly 10 cents. Such phenomenon implies that non-comparable firms are not efficient with their *excess* cash management. On the other hand, as predicted, the coefficients on $COMPACCT_{i,t} \times \frac{\Delta C_{i,t+1}}{NA_{i,t}}$ are negative and statistically significant. The magnitude (t-value) of coefficients on $COMPACCT_{i,t} \times \frac{\Delta C_{i,t+1}}{NA_{i,t}}$ when comparability is measured by $CompAcctIndmed_{i,t}$, $CompAcctIndavg_{i,t}$, and $CompAcct4_{i,t}$ are -0.148 (-3.96), -0.128 (-3.45), and -0.060 (-1.97) respectively, suggesting that in comparable firms a dollar of cash expenditure contributes roughly 10 cents more to industry-adjusted return on asset in year *t+4* than a dollar of cash expenditure does in their non-comparable counterparts. This result suggests that unlike non-comparable firms, comparable firms are efficient in their *excess cash expenditures*.

[Insert Table 5 about here]

To alleviate a concern that year *t+4* is arbitrarily chosen, I investigate how the impact of use of excess cash perpetuate in subsequent periods. Table 5, Panel B reports the coefficient on $COMPACCT_{i,t} \times \frac{\Delta C_{i,t+1}}{NA_{i,t}}$ when the dependent variables are industry-adjusted return on asset in year *t*, year *t+1*, year *t+2*, year *t+3*, year *t+4*, year *t+5*, and year *t+6* respectively. The coefficients are insignificant until year *t+3,* but become negative and

statistically significant in year *t+4* and year *t+5*. In year *t+6*, the coefficients are negative but statistically insignificant. The result suggests that it takes time for cash expenditure to materialize in the form of improved industry-adjusted return on asset and the effect perpetuates for at least two periods in a row starting from year *t+4*.

5.4. Comparability and capital expenditure sensitivity to cash holdings

Previous analysis suggests that comparable firms are efficient in their cash expenditure. As it doesn't specify the specific form of cash expenditure that comparable firms are efficient at, it is still not clear where the cash is spent and how the expenditure contributes to improved future profitability. To shed light on such issue, I investigate a specific form of investment in which cash is presumably spent in comparable firms: capital expenditure. I choose capital expenditure because it is one of the most important investments that a firm must make to maintain its operation and because prior literature suggests that different mechanisms that mitigate the free cash flow problem are associated with improvement in management of capital expenditure (Masulis, Wang, and Xie 2009; Kim et al. 2015).

First, I investigate the relation between capital expenditure sensitivity to cash holdings. The free cash flow problem that Jensen (1986) suggested implies that firms subject to the agency problem are more prone to over-investment. That is, firms are more likely to spend their cash in capital expenditure that is not necessarily beneficial to shareholders. Thus, I predict that if comparability mitigates the free cash flow problem, then there should be less severe over-investment. That is, the capital expenditure sensitivity to cash holdings should be lower for comparable firms than their non-comparable

counterparts.[10]

To estimate the capital expenditure sensitivity to cash holdings, I follow Denis and Sibilkov (2010) and employ their regression model. Specifically, I regress capital expenditure in year *t+1* on cash holdings, cash flow from operation, market-to-book ratio, and sales growth. To address potential endogeneity with respect to the level of cash holdings, I use the two-staged-least squares (2SLS) methodology[11]. Since comparability measures are decile-ranked and rescaled to range between [0, 1], the coefficient on $\frac{\widehat{C_{i,t}}}{NA_{i,t-1}}$ suggest the sensitivity of firms in the lowest comparability decile while coefficient on $COMPACCT_{i,t} \times \frac{\widehat{C_{i,t}}}{NA_{i,t-1}}$ suggest the difference in sensitivity between firms in the lowest comparability decile and firms in the highest comparability decile. The details on the regression specification are summarized below:

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[10] This prediction should only hold when capital expenditure opportunities that the firm face are over-investments (i.e., not sufficiently profitable). If not, the reverse should be true. For example, Kim et al. (2015) suggest that higher capital expenditure sensitivity to cash holding is a good signal and argue that if higher-quality auditors provide better information for the oversight of capital investments, then capital expenditure should be more closely associated with cash holdings in firms with higher-quality auditors. To argue that the higher sensitivity is beneficial to shareholder, Kim et al. (2015) check whether the investment is indeed value-enhancing for shareholders and not an overinvestment. My findings also suggest that comparability increases the capital expenditure sensitivity to cash holdings and that such capital expenditure is value-enhancing, mitigating the concern that comparable firms are over-investing.

[11] Following Kim et al. (2015) in the first stage I estimate the following modified Oper et al. (1999) model: $\ln(1 + C_{i,t}/NA_{i,t-1}) = \alpha_0 + \alpha_1 \times size_{i,t} + \alpha_2 \times leverage_{i,t} + \alpha_3 \times NWC_{i,t} + \alpha_5 \times R\&D_{i,t} + \alpha_6 \times dividend_{i,t} + \varepsilon_{i,t}$, where $size_{i,t}$ is the natural logarithm of total asset; $leverage_{i,t}$ is total debt over sum of total debt and market value of equity; $NWC_{i,t}$ is net working capital to total asset net of cash; $R\&D_{i,t}$; $dividend_{i,t}$ is dividend to total asset net of cash. Opler et al. (1999) suggest that operating cash flow, market to book value, and capital expenditure are associated with cash-holdings, but as the variables are included in my main regression model as independent or dependent variables I exclude them.

$$\frac{Capexp_{i,t+1}}{NA_{i,t}} = \alpha_0 + \alpha_1 \times \frac{\widehat{C_{i,t}}}{NA_{i,t-1}} + \alpha_2 \times COMPACCT_{i,t} \times \frac{\widehat{C_{i,t}}}{NA_{i,t-1}} + \alpha_3 \times \frac{OCF_{i,t}}{NA_{i,t-1}} \quad (8)$$

$$+\alpha_4 \times MTB_{i,t} + Growth_{i,t} + Fixed\ Effects + \varepsilon_{i,t}$$

where for firm *i* in year *t*,

$COMPACCT_{i,t}$ = Financial statement comparability, measured using either $CompAcctIndmed_{i,t}$, $CompAcctIndavg_{i,t}$, or $CompAcct4_{i,t}$. Comparability measures are decile-ranked and normalized to range between [0, 1]

$NA_{i,t}$ Asset net of cash

$Capexp_{i,t}$ = Capital expenditure. For firms that do not report capital expenditure, I assumed it to be zero.

$\widehat{C_{i,t}}$ = Estimated cash and cash equivalent from modified Opler et al. (1999) model.

$OCF_{i,t}$ = Operating cash flow

$MTB_{i,t}$ = Market value of equity in year t deflated by book value of equity in year *t-1*.

$Growth_{i,t}$ = The percentage change in gross sales from year *t-1* to year the year t.

Table 6 presents the regression result for the impact of comparability on capital expenditure sensitivity to cash holdings. Column (1), Column (2), and Column (3) report the effect of comparability as measured by $CompAcctIndmed_{it}$, $CompAcctIndavg_{it}$, and $CompAcct4_{it}$ respectively. Consistent with Denis and Sibilkov (2010) and Kim et al. (2015), the coefficient on $\frac{\widehat{C_{i,t}}}{NA_{i,t-1}}$ is positive and statistically significant. Unexpectedly, the coefficient on $COMPACCT_{i,t} \times \frac{\widehat{C_{i,t}}}{NA_{i,t-1}}$ are positive and statistically significant. Specifically,

the magnitude (t-value) of coefficients on $COMPACCT_{i,t} \times \frac{\widehat{C_{i,t}}}{NA_{i,t-1}}$ when comparability is measured by $CompAcctIndmed_{i,t}$, $CompAcctIndavg_{i,t}$, and $CompAcct4_{i,t}$ are 0.046 (3.50), 0.056 (9.85), and 0.049 (9.71) respectively. The results suggest that comparable firms spend their cash more in capital expenditure than their non-comparable counterparts. This is contrary to my expectation; thus I conduct additional analysis in next section to examine the phenomenon more thoroughly.

[Insert Table 6 about here]

5.5. Financial statement comparability and the market value of capital expenditure

To further investigate whether comparable firms engage in over-investment, I conduct another analysis to see whether capital expenditure that comparable firms undertake is, indeed, over-investment (i.e., value-decreasing investment). Perhaps, the reason that comparable firms have higher sensitivity to cash holdings is because the capital expenditure that comparable firms undertake is more value-enhancing than that of non-comparable firms. In such case, the capital expenditure is not an over-investment but a legitimate investment that benefits shareholders.

For the purpose, following Masulis et al. (1999) and Kim et al. (2015), I estimate the market value of capital expenditure with modified Faulkender and Wang's (2006) regression model. Specifically, I regress annual excess return on change in capital expenditure and other control variables. As small change in capital expenditure may reflect change in maintenance costs as opposed to capital investment, I focus on firms that have

at least 5 percentage increase in capital expenditure, consistent with prior studies (Masulis et al. 2009; Kim et al. 2015). Once again comparability measures are decile-ranked and rescaled to range between [0, 1]. The details on the regression model are summarized below:

$$r_{i,t} - R^{B}_{i,t} = \alpha_0 + \alpha_1 \times \frac{\Delta Capexp_{i,t}}{M_{i,t-1}} + \alpha_2 \times \frac{\Delta E_{i,t}}{M_{i,t-1}} + \alpha_3 \times \frac{\Delta NA_{i,t}}{M_{i,t-1}} + \alpha_4 \times \frac{\Delta RD_{i,t}}{M_{i,t-1}} \quad (9)$$

$$+\alpha_5 \times \frac{\Delta I_{i,t}}{M_{i,t-1}} + \alpha_6 \times \frac{\Delta D_{i,t}}{M_{i,t-1}} + \alpha_7 \times \frac{\Delta Capexp_{i,t-1}}{M_{i,t-1}} + \alpha_8 \times L_{i,t}$$

$$+\alpha_9 \times \frac{NF_{i,t}}{M_{i,t-1}} + \alpha_{10} \times COMPACCT_{i,t} + \alpha_{11} \times COMPACCT_{i,t} \times \frac{\Delta Capexp_{i,t}}{M_{i,t-1}}$$

$$+Fixed\ Effects + \varepsilon_{i,t}$$

where for firm *i* in year *t*,

$COMPACCT_{i,t}$ = Financial statement comparability, measured using either $CompAcctIndmed_{i,t}$, $CompAcctIndavg_{i,t}$, or $CompAcct4_{i,t}$. Comparability measures are decile-ranked and normalized to range between [0, 1]

Control Variable = Change in capital expenditure ($\Delta Capexp_{i,t}$), change in earnings ($\Delta E_{i,t}$), change in total asset net of cash ($\Delta NA_{i,t}$), change in R&D expenditure (ΔRD), change in interest expense ($\Delta I_{i,t}$), change in common dividend ($\Delta D_{i,t}$), capital expenditure at the end of the previous year ($\Delta Capexp_{i,t-1}$) and new finance from year *t-1* to year *t* ($NF_{i,t}$), all deflated by market value of firm at year *t-1* ($M_{i,t-1}$) except for leverage

$r_{i,t} - R^{B}_{i,t}$ = Annual excess return measured over 12-month period ending three months after the fiscal year-end minus benchmark portfolio return

during the same period. The benchmark portfolio return is measured by the equally weighted average return of Fama and French's (1993) 25 size and book-to-market portfolio

Table 7 presents the regression result for the effect of comparability on the market value of capital expenditure. The coefficients on $\frac{\Delta Capexp_{i,t}}{M_{i,t-1}}$ are negative and statistically insignificant across all columns, consistent with prior studies (Kim et al. 2015). The result suggest that capital expenditure is not necessarily value-enhancing for firms in the lowest comparability decile. However, the coefficient on $COMPACCT_{i,t} \times \frac{\Delta Capexp_{i,t}}{M_{i,t-1}}$ are positive and statistically significant, implying that capital expenditure in comparable firms are indeed value-enhancing. Specifically, the magnitude (t-value) of the coefficients on $COMPACCT_{i,t} \times \frac{\Delta Capexp_{i,t}}{M_{i,t-1}}$, when comparability is measured by $CompAcctIndmed_{i,t}$, $CompAcctIndavg_{i,t}$, and $CompAcct4_{i,t}$ are 0.268 (1.73), 0.334 (2.35), and 0.474 (2.78) respectively. Although the magnitude and t-value are slightly lower when comparability is measured by $CompAcctIndmed_{i,t}$, the regression results suggest that comparability increases the market value of capital expenditure in general. This implies that comparable firms are managing their capital expenditure efficiently.

[Insert Table 7 about here]

The result for market value of capital expenditure implies that high capital expenditure sensitivity in comparable firms is not evidence of over-investment. High sensitivity in comparable firms should be the case as comparable firms are more efficient

in their capital expenditure such that the expenditure is more value-increasing for shareholder. Therefore, jointly, the results in this section and previous section imply that comparable firms are more efficient with capital expenditure and that the higher market value of cash in comparable firms may be manifestation of market expectation that the cash in comparable firms will be efficiently used in capital expenditure.

5.6. Comparability and the value of cash holdings during financial crisis period and non-financial crisis period

The next analysis is designed to investigate whether the effect of comparability differs considerably during financial crisis period and non-financial crisis period. Prior studies suggest that during 2008-2009 financial crisis, firms' credit lines were heavily undermined and that liquidity became scarce (Campello et al. 2010; Campello et al. 2011). Consequently, underinvestment problem, a problem that firms with positive net present value investment opportunity fail to undertake the investment due to lack of capital, became more critical among firms, and cash become more valuable to firms (Campello et al. 2011).[12] Therefore, it is an empirically important question whether the effect of comparability on the value of cash holdings remains (or accentuates) when cash is the most needed.

There are reasons to expect that this is, in fact, the case, and that the effect actually

[12] Kim et al. (2015) suggest that the opposite may be true. During financial crisis, investment opportunities are limited due to the economic recession, thus, the value of liquid asset decreases as the value of investment decreases. However, they document that the value of cash increases during financial crisis period (i.e., 2006-2008). My finding is consistent with Kim et al. (2015)

accentuates during financial crisis period. Lang, Lins, and Maffett (2012), investigating in international setting, document that transparency (as measured by less evidence of earnings management, better accounting standard, higher quality auditors, more analyst following, and more accurate analysts' forecasts) is negatively associated with transaction costs and positively associated with liquidity and that transparency matters more during times of greater investor uncertainty. Similarly, Francis, Hasan, Wu (2013) document that accounting conservatism positively affect firm value during 2008-2009 financial crisis. Presuming that comparability contribute to market participants' decision making in a similar fashion to transparency and accounting conservatism, I expect that the relation between comparability and the value of cash holdings should accentuate during financial crisis. To investigate differential effects of comparability on value of cash holdings during crisis and non-crisis period, I estimated the modified Faulkender and Wang (2005) regression model (i.e., equation (5)) separately for crisis period (i.e., 2008 -2009) and non-crisis period (i.e., 1990 – 2007 and 2010-2013).

Table 8 presents the regression results; each column reports the coefficient on the variables of interest (i.e., $\frac{\Delta C_{i,t}}{M_{i,t-1}}$ and $COMPACCT_{i,t} \times \frac{\Delta C_{i,t}}{M_{i,t-1}}$) when comparability is measured by $CompAcctIndmed_{i,t}$, $CompAcctIndavg_{i,t}$, and $CompAcct4_{i,t}$ respectively. The coefficient on $\frac{\Delta C_{i,t}}{M_{i,t-1}}$ is bigger during non-crisis period than during crisis period. Specifically, when comparability is measured by $CompAcctIndmed_{i,t}$, $CompAcctIndavg_{i,t}$, and $CompAcct4_{i,t}$, the coefficients on $\frac{\Delta C_{i,t}}{M_{i,t-1}}$ during non-crisis (crisis) period are 0.900 (0.357), 0.922 (0.460), and 0.854 (0.535) respectively. The

difference on the coefficient between crisis period and non-crisis period are statistically significant; t-value of the differences are -3.08, -2.59, and -1.74 when comparability is measured by $CompAcctIndmed_{i,t}$, $CompAcctIndavg_{i,t}$, and $CompAcct4_{i,t}$ respectively. Note the statistical significance is slightly low when comparability is measured by $CompAcct4_{i,t}$, but in general coefficients are statistically significant. The magnitude is also economically significant. During crisis period, the value of a dollar in the lowest comparability decile is reduced to less that the half of that expected during non-crisis period when comparability is measured by $CompAcctIndmed_{i,t}$ and $CompAcctIndavg_{i,t}$. When comparability is measured by $CompAcct4_{it}$, the value of cash for firms in the lowest decile during financial crisis period is roughly half of that expected during non-financial crisis. The results imply that despite relative scarceness of liquid asset during financial crisis period, firms in the lowest comparability decile suffer greater discount for additional dollar on hand during crisis period than during non-crisis period. This suggest that due to underlying uncertainty, market participants are more cautious about the free cash problem.

[Insert Table 8 about here]

The difference in the coefficients on $COMPACCT_{i,t} \times \frac{\Delta C_{i,t}}{M_{i,t-1}}$ help understand whether the market participants do care more about the free cash flow problem. Unlike the coefficient on $\frac{\Delta C_{i,t}}{M_{i,t-1}}$, the coefficient on $COMPACCT_{i,t} \times \frac{\Delta C_{i,t}}{M_{i,t-1}}$ is bigger during crisis period than during non-crisis period, and the difference is larger than that of the coefficient

on $\frac{\Delta C_{i,t}}{M_{i,t-1}}$. Specifically, when comparability is measured by $CompAcctIndmed_{i,t}$, $CompAcctIndavg_{i,t}$, and $CompAcct4_{i,t}$, the coefficients on $COMPACCT_{i,t} \times \frac{\Delta C_{i,t}}{M_{i,t-1}}$ during non-crisis (crisis) period are 0.214 (1.415), 0.180 (1.187), and 0.318 (0.833) respectively. The difference on the coefficient between crisis period and non-crisis period are statistically significant; t-value of the differences are 4.66, 3.99, and 1.95 when comparability is measured by $CompAcctIndmed_{i,t}$, $CompAcctIndavg_{i,t}$, and $CompAcct4_{i,t}$ respectively. Although the statistical significance is slightly low when comparability is measured by $CompAcct4_{i,t}$, this is consistent with slightly low statistical significance on the penalty that non-comparable firms suffer during crisis period when comparability is measured by $CompAcct4_{i,t}$. The magnitudes are economically significant as well. The coefficients on $COMPACCT_{i,t} \times \frac{\Delta C_{i,t}}{M_{i,t-1}}$ are more than 6 times larger during financial crisis when comparability is measured by $CompAcctIndmed_{i,t}$ and $CompAcctIndavg_{i,t}$, and the coefficient is more than twice larger during crisis period than during non-crisis period. The results suggest that the value of cash for firms in the highest comparability decile is higher during financial crisis than non-financial crisis. When comparability is measured by $CompAcctIndmed_{i,t}$, $CompAcctIndavg_{i,t}$, and $CompAcct4_{it}$, the values of additional cash in the highest comparability decile are 1.114 (=0.900+0.214), 1.102 (=0.922+0.180), and 1.172 (=0.854+0.318) respectively during non-financial crisis while the values are 1.772 (=0.357+1.415), 1.647(=0.460+1.187), and 1.368 (=0.535+0.833) respectively during financial crisis period. This is consistent with the fact that liquid asset is scarce during financial crisis and that as a result cash is more

valuable to the firm as it mitigates the underinvestment problem.

In sum, the result suggests that comparability contributes more to the firm value during financial crisis than during non-financial crisis. Firms in highest comparability decile enjoy greater premium for additional dollar on hand during crisis period than during non-crisis period, while firms in the lowest comparability decile suffer greater penalty. This is presumably because the underlying economy is more uncertain during financial crisis period such that market participants are more cautious about the free cash flow problem (Francis et al. 2013) and because the liquid asset is scarce during financial crisis period such that so long as shareholders are assured that the cash will be used for their own benefit, they will put more value to additional dollar that firms hold. (Campello et al. 2010; Campello et al. 2011)

5.7. Controlling for strength of corporate governance

In this section, I investigate whether the result I have documented is robust to strength of corporate governance. Dittmar and Mahrt-Smith (2007) document that corporate governance affects the value of cash holdings. In particular, they argue that investor oversight by large institutional shareholders and managerial entrenchment resulting from antitakeover provisions are closely associated with the value of cash holdings. The higher the investor oversight and the lower the managerial entrenchment, the higher the value of additional dollar. Although comparability and strength of corporate governance are conceptually different, it would be safe to test whether two effects are robust to one another. To address the issue, I employ Dittmar hand Mahrt-Smith's (2007) methodology and conduct additional analysis. Specifically, I introduce the G-Index (Gompers et al. 2003),

an index that measures the number of antitakeover provisions in firms' charter and in the legal code, to the modified Faulkender and Wang (2005) regression model[13]. Following Dittmar and Mahrt-Smith (2007), I convert the G-Index into a dummy variable by forming a tercile, deleting the middle tercile, and normalizing it to range between [0, 1]. Specifically, the $GOV_{i,t}$ is defined to be 1 if a firm's G-Index is in the lowest tercile and 0 if a firm's G-Index is in the highest tercile in each fiscal year. As I restrict my sample to have $GOV_{i,t}$ in this analysis, the sample size is reduced to 7,941 firm-year observation over the period of 1990 – 2006[14].

Table 9, Panel A reports the result of the regression analysis. Column (1) presents the replication of Dittmar and Mahrt-Smith's (2007) analysis. Consistent with their result, coefficient on $Gov_{i,t} \times \frac{\Delta C_{i,t}}{M_{i,t-1}}$ is positive and statistically significant, suggesting that the smaller the number of antitakeover provision, the higher the market value of cash holdings. Column (2) through Column (4) present the regression result when comparability is measured by $CompAcctIndmed_{i,t}$, $CompAcctIndavg_{i,t}$, and $CompAcct4_{i,t}$ respectively. Although the statistical significances are slightly attenuated (i.e., t-values of $COMPACCT_{i,t} \times \frac{\Delta C_{i,t}}{M_{i,t-1}}$, when comparability is measured by the $CompAcctIndmed_{i,t}$, $CompAcctIndavg_{i,t}$, and $CompAcct4_{i,t}$, are 2.53, 2.19, and 1.93 respectively), the coefficients on $COMPACCT_{i,t} \times \frac{\Delta C_{i,t}}{M_{i,t-1}}$ are still statistically and economically significant.

[13] Professor Metrick discloses the index publicly, and the index is downloadable from his homepage.

[14] The sample period is reduced to 1990 – 2006 from 1990 – 2013 as the G-Index is only available until 2006.

The coefficients on $Gov_{i,t} \times \frac{\Delta C_{i,t}}{M_{i,t-1}}$ are also statistically and economically significant, even though the statistical significances are also slightly decreased. However, coefficients on $\frac{C_{i,t}}{M_{i,t-1}} \times \frac{\Delta C_{i,t}}{M_{i,t-1}}$ lose their statistical significance as I introduce both $COMPACCT_{i,t} \times \frac{\Delta C_{i,t}}{M_{i,t-1}}$ and $Gov_{i,t} \times \frac{\Delta C_{i,t}}{M_{i,t-1}}$ into the regression model. The result implies that the effect of comparability and strength of corporate governance on the value of cash holdings are robust to one another.

[Insert Table 9 about here]

To shed light on the relation among the strength of corporate governance, comparability, and the value of cash holdings, in Panel B, I separately estimate the modified Faulkender and Wang (2005) regression model with in the lowest and the highest $Gov_{i,t}$ decile. That is, I investigate whether the impact of comparability on the value of cash holdings has differential effect conditioning on the degree of managerial entrenchment. The table reports the coefficient on $COMPACCT_{i,t} \times \frac{\Delta C_{i,t}}{M_{i,t-1}}$, the variable of my interest. The result suggests that the coefficients on $COMPACCT_{i,t} \times \frac{\Delta C_{i,t}}{M_{i,t-1}}$ are statistically and economically significant when the corporate governance is strong (i.e., the managerial entrenchment is low), while the coefficients are not statistically significant when the corporate governance is weak (i.e., the managerial entrenchment is high). Specifically, when comparability is measured by $CompAcctIndmed_{i,t}$, $CompAcctIndavg_{i,t}$,and $CompAcct4_{i,t}$, the magnitude (t-value) of the coefficients on

$COMPACCT_{i,t} \times \frac{\Delta C_{i,t}}{M_{i,t-1}}$ are 0.792 (3.14), 0.580 (2.54), and 0.562 (2.23) respectively, if the corporate governance is strong, but the magnitude (t-value) of the coefficients aare only 0.368 (1.29), 0.339 (1.20), and 0.278 (1.01) respectively, if the corporate governance is weak. The result implies that although comparability enables market participants to scrutinize the managerial cash management, inducing managers to be more efficient with their cash holdings, the mechanism is more effective when the managers are less entrenched (i.e., there are effective means to penalize managers who do not use cash efficiently on shareholder's behalf). This is consistent with the argument that accounting information constitutes a building block in corporate governance of a firm by being an input to existing governance mechanisms (Bushman and Smith 2001). To elaborate, accounting information provides accurate information on managers' behavior; different overseeing entities, equipped with the information, direct managers to behave for the benefits of shareholders.

5.8. Controlling for other financial reporting quality measures

In this section, I test whether the effect of comparability on the value of cash holdings is robust to other financial reporting qualities. De Franco et al. (2011) suggest that comparability measures are closely associated with other financial reporting quality measures. Since prior studies suggest that other financial reporting qualities are associated with the market value of cash (Louis et al. 2012; Sun et al. 2012), it should be verified whether the documented effect is not a manifestation of the effect of other financial reporting qualities. For the purpose, I control for accrual quality (Dechow and Dichev 2002;

McNichols 2002) and accounting conservatism (Hayn and Givoly 2000).[15] I specifically examine the aforementioned financial reporting qualities because prior studies suggest that they are associated with the value of cash holdings. Sun et al. (2012) and Kim et al. (2015) suggest that financial reporting quality is positively associated with the value of cash holdings and Louis et al. (2012) document that accounting conservatism is positively associated with the value of cash holdings. Following Sun et al. (2012) and Louis et al. (2012), I measure firm-level accrual quality by modified Dechow and Dichev (Dechow and Dichev 2002; McNichols 2002) and firm-level conservatism by accounting conservatism measure developed in Hayn and Givoly (2000). To facilitate interpretation and to be consistent with adjustment on comparability measures, I decile-ranked each financial reporting qualities within each year and normalized so that the measure range between [0, 1]. See the appendix for details of variable definition.

Table 10 reports the regression result about the effect of comparability on the value of cash holdings after controlling for accrual quality. In Table 10 column (1), I provide a replication of prior study as a benchmark. Consistent with Sun et al. (2012) and Kim et al. (2015), the accrual quality is positive and statistically significant at 1% level. Specifically, the magnitude (t-value) of the coefficient on $AQ_{i,t} \times \frac{\Delta C_{i,t}}{M_{i,t-1}}$ is 0.211 (2.65), suggesting that a transition from the lowest comparability decile to the highest comparability decile increases the value of additional dollar by 21.1 cents. Column (2)

[15] There are other measures of accounting conservatism (Basu 1997; Ball and Shivakumar 2005). However, Louis et al. (2012) suggest that for value of cash studies Givoly and Hayn (2000) is the most suitable. I, thus, use Givoly and Hayn (2000) in this section.

through Column (5) report the regression results about the effect of comparability on the value of cash holdings controlling for accrual quality. Each column presents the regression result when comparability is measured by $CompAcctIndmed_{i,t}$, $CompAcctIndavg_{i,t}$, and $CompAcct4_{i,t}$ respectively. The coefficients on $COMPACCT_{i,t} \times \frac{\Delta C_{i,t}}{M_{i,t-1}}$ are still positive and statistically significant, suggesting that the effect of comparability on the value of cash holdings is robust to accrual quality. Specifically, the magnitude (t-value) of the coefficients on $COMPACCT_{i,t} \times \frac{\Delta C_{i,t}}{M_{i,t-1}}$ when comparability is measured by $CompAcctIndmed_{i,t}$, $CompAcctIndavg_{i,t}$, and $CompAcct4_{i,t}$ are 0.307 (3.53), 0.252 (3.01), and 0.368 (3.98) respectively. On the other hand, the coefficients on $AQ_{i,t} \times \frac{\Delta C_{i,t}}{M_{i,t-1}}$ have declined both in magnitude and t-value, albeit slightly. The results suggest comparability is distinctly important in mitigating the free cash flow problem and hence in increasing the value of cash holdings.

[Insert Table 10 about here]

Table 11 reports the regression result about the effect of comparability on the value of cash holdings after controlling for accounting conservatism. In Table 11 column (1), I provide a replication of prior study as a benchmark. Consistent with Louis et al. (2012), the impact of accounting conservatism on the value of cash holdings is positive and statistically significant at 5% level. Specifically, the magnitude (t-value) of the coefficient on $CONSERV_{i,t} \times \frac{\Delta C_{i,t}}{M_{i,t-1}}$ is 0.191 (2.01), suggesting that a transition from the

lowest comparability decile to the highest comparability decile increases the value of additional dollar by 19.1 cents. Column (2) through Column (5) report the regression results about the effect of comparability on the value of cash holdings controlling for accounting conservatism. Each column presents the regression result when comparability is measured by $CompAcctIndmed_{i,t}$, $CompAcctIndavg_{i,t}$, and $CompAcct4_{i,t}$ respectively. The coefficients on $COMPACCT_{i,t} \times \frac{\Delta C_{i,t}}{M_{i,t-1}}$ are positive and statistically significant. In fact, the magnitudes and t-values of the coefficients have increased slightly, suggesting that the effect of comparability on the value of cash holdings is robust to accounting conservatism. Specifically, the magnitude (t-value) of the coefficients on $COMPACCT_{i,t} \times \frac{\Delta C_{i,t}}{M_{i,t-1}}$ when comparability is measured by $CompAcctIndmed_{i,t}$, $CompAcctIndavg_{i,t}$,and $CompAcct4_{i,t}$ are 0.464 (4.12), 0.400 (3.66), and 0.470 (4.03) respectively. On the other hand, the magnitudes and t-values of the coefficients on $CONSERV_{i,t} \times \frac{\Delta C_{i,t}}{M_{i,t-1}}$ have increased when comparability is measured by $CompAcctIndmed_{i,t}$ or $CompAcctIndavg_{i,t}$. But the magnitude and t-value have declined when comparability is measured by $CompAcct4_{i,t}$, albeit slightly. The result confirms that comparability is distinct from accounting conservatism and that both comparability and accounting conservatism serves roles in mitigating the free cash flow problem.

[Insert Table 11 about here]

5.9. Alternative measures for financial statement comparability and the value of cash holdings

In this section, I test whether my findings are robust to alternative measures of comparability. The De Franco et al.'s (2011) measures implicitly assume a linear relation between underlying economic event and accounting numbers. However, prior studies suggest that the relation between the return (i.e., the proxy for economic event), and earnings (i.e., the proxy for accounting numbers) is not linear but piece-wise linear conditional on whether the return is positive or negative (e.g., Basu 1997). To address this concern, I modify the underlying premise about the accounting mapping to accommodate such piece-wise linearity and compute the firm specific accounting mapping as Barth et al. (2012) and Kim et al. (2016) suggest. Specifically, I estimate the following time-series regression model using 16-quarter of data:

$$r_{i,t} = \alpha_0 + \alpha_1 \times \frac{E_{i,t}}{P_{i,t-1}} + \alpha_2 \times \frac{\Delta E_{i,t}}{P_{i,t-1}} + \alpha_3 \times LOSS_{i,t} + \alpha_4 \times LOSS_{i,t} \times \frac{E_{i,t}}{P_{i,t-1}} \quad (10)$$

$$+\alpha_4 \times LOSS_{i,t} \times \frac{E_{i,t}}{P_{i,t-1}} + \varepsilon_{i,t}$$

where for firm *i* in quarter *t*,

$r_{i,t}$		Quarterly stock return
$E_{i,t}$	=	Quarterly net income before extraordinary item
$P_{i,t}$	=	Stock price at the end of the period
$LOSS_{i,t}$	=	Dummy variable that equals 1 if $E_{i,t}$ is negative and 0 otherwise

I follow the prior algorithm to estimate firm-level comparability measures: $CompAcctIndmed_{i,t}$, $CompAcctIndavg_{i,t}$,and $CompAcct4_{i,t}$.

Table 12, Panel A provides the descriptive statistics for the alternative measure of

comparability put forth by Barth et al. (2012) and Kim et al. (2016). Consistent with De Franco et al.'s (2011) measure, the Barth et al. (2012) measure is skewed to the left as median is bigger than the mean. The relative size of comparability measures (i.e., size of $CompAcctIndmed_{i,t}$, $CompAcctIndavg_{i,t}$, and $CompAcct4_{i,t}$ with respect to one another) are consistent with De Franco et al. (2011). To accommodate such non-linearity and to facilitate economic interpretation, I decile-ranked comparability measures within each fiscal year and normalized to range between [0, 1].

[Insert Table 12 about here]

Table 12, Panel B presents regression results. For the sake of brevity, I only report the variables of interest, as the control variables are fairly consistent with prior analyses. The coefficients on $COMPACCT_{i,t} \times \frac{\Delta C_{i,t}}{M_{i,t-1}}$ are positive and statistically significant, suggesting that the relation between comparability and the value of cash holdings is not specific to De Franco et al.'s (2011) comparability measures. In fact, the results suggest that the impact of comparability on the value of cash holdings is higher when alternative accounting mapping is assumed and comparability is measured by $CompAcctIndmed_{i,t}$ and $CompAcctIndavg_{i,t}$.

Second, I employ another alternative comparability measure put forth by Choi et al. (2017). De Franco et al. (2011) uses stock return in the first stage to estimate firm specific accounting mapping. As my main regression model employs adjusted stock return as dependent variable, there may be concern over the specification (i.e., simultaneous

equation bias). To address this issue, I estimate the firm specific accounting mapping without resorting to return data. Specifically, following Choi et al. (2017), I estimate the following time-series regression model using 16-quarter of data:

$$\frac{E_{i,t}}{M_{i,t-1}} = \alpha_0 + \alpha_1 \times \frac{OCF_{i,t}}{M_{i,t-1}} + \varepsilon_{i,t} \qquad 0$$

where for firm *i* in quarter *t*,

$E_{i,t}$		Quarterly net income before extraordinary item
$M_{i,t}$	=	Market value of equity at the end of the period
$OCF_{i,t}$	=	Quarterly operating cash flow

I follow the prior algorithm to estimate firm-level comparability measures: $CompAcctIndmed_{i,t}$, $CompAcctIndavg_{i,t}$,and $CompAcct4_{i,t}$.

Table 13, Panel A reports the descriptive statistics for the alternative comparability measures. Unlike the measure put forth by Barth et al. (2012), the Choi et al. (2017) measures have similar distribution to De Franco et al.'s (2011) measure even in magnitude. Once again to accommodate non-linearity and to facilitate economic interpretation, I decile-rank comparability measures within each fiscal year and normalized to range between [0, 1]: $CompAcctIndmed_{i,t}$, $CompAcctIndavg_{i,t}$,and $CompAcct4_{i,t}$.

[Insert Table 13 about here]

Table 13, Panel B presents results for the regression analyses. Consistent with prior analyses, the coefficients $COMPACCT_{i,t} \times \frac{\Delta C_{i,t}}{M_{i,t-1}}$ are positive and statistically significant. Although the adjusted R^2 from the regression models are slightly higher than

my main regression, the tenor of the results remain identical, suggesting that the simultaneous equation bias is not confounding the regression results.

6. CONCLUSION

In this paper, I examine whether financial statement comparability affects the market valuation of cash holdings. Based on a large sample U.S. firms, I document that comparability is positively associated with the value of cash holdings and *excess* cash. Specifically, a transition from the lowest comparability decile to the highest comparability decile is associated with about 30 cents premium for every dollar that firm holds. I attribute such increase in the value of cash to the mitigation of the free cash flow problem (Jensen 1986). Consistent with the argument, I document (1) that comparable firms that spend their excess cash exhibit higher future industry adjusted return on asset than their non-comparable counterparts that do so, (2) comparable firms shows higher capital expenditure sensitivity to cash holdings than non-comparable peers, and (3) that such capital expenditure is indeed value-enhancing. The results suggest that comparable firms are more efficient in their cash management. I argue that this is the case, because, with comparable accounting information, shareholders can make better inference about cash management of a firm, and such scrutiny will induce managers to deviate from seeking their own self-interest. To corroborate the argument, I document (1) that the effect of comparability on the value of cash holdings accentuate during financial crisis period, suggesting that comparability beneficial when liquidity is the most needed, (2) that the effect is robust to strength of corporate governance and becomes stronger in strong corporate governance, (3) that the effect is robust to other financial reporting qualities (i.e., accrual quality and

accounting conservatism), and (4) that the effect is robust to alternative comparability measures (i.e., Barth et al. (2012) measure and Choi et al. (2017) measure).

I acknowledge that my study is subject to potential limitation such as measurement errors and that such limitations make it difficult to argue for causality. Despite such issues, I suggest that my finding implies an important merit of having comparable accounting information. That is, it reduces the agency problem as it reveals information about the managerial behavior. I suggest that regulation setter and policy makers can gain useful insight from my study, as my study provides another point to consider when instituting or amending accounting principles.

REFERENCES

Acharya, V. V., H. Almeida, and M. Campello. 2007. Is cash negative debt? A hedging perspective on corporate financial policies. *Journal of Financial Intermediation* 16(4): 515-554.

Amihud, Y., and B. Lev. 1981. Risk reduction as a managerial motive for conglomerate mergers. *The bell journal of economics*: 605-617.

Barth, M. E., W. R. Landsman, M. Lang, and C.D Williams. 2012. Are IFRS-based and US GAAP-based accounting amounts comparable? *Journal of Accounting and Economics* 54(1): 68-93.

Barth, M. E., W. R. Landsman, M. Lang, and C.D Williams. 2013. Effects on comparability and capital market benefits of voluntary adoption of IFRS by US firms: Insights from voluntary adoption of IFRS by non-US firms. Working paper, Stanford University, University of North Carolina at Chapel Hill, and University of Michigan.

Basu, S. 1997. The conservatism principle and the asymmetric timeliness of earnings. *Journal of accounting and economics*, 24(1): 3-37.

Biddle, G. C., C. M. Callahan, H. A Hong, and R. L Knowles. 2016. Do adoptions of international financial reporting standards enhance capital investment efficiency? Working paper, University of Hong Kong, University of Louisville, University of California-Riverside, and Texas A&M International University.

Bradshaw, M.T., G. S. Miller, and S.J. Serafeim. 2009. Accounting method heterogeneity and analysts'forecasts. Working paper, Boston College, University of Michigan, and Harvard University.

Bushman, R. M., and A. J. Smith. 2001. Financial accounting information and corporate governance. *Journal of accounting and Economics*, 32(1): 237-333.

Campello, M., J. R. Graham, and C. R. Harvey. 2010. The real effects of financial constraints: Evidence from a financial crisis. *Journal of financial Economics*, 97(3): 470-487.

Campello, M., E. Giambona, J. R. Graham, and C. R. Harvey. 2011. Liquidity management and corporate investment during a financial crisis. *The Review of Financial Studies*, 24(6): 1944-1979.

Choi, J. H., S. Choi, L. A. Myers, and D. A. Ziebart. 2017. Financial statement comparability and the informativeness of stock prices about future earnings. Working paper, Seoul National University, Lancaster University, The University

of Tennessee, Knoxville, and University of Kentucky.

Chen, C. W., D. W. Collins, T. D. Kravet, and R. Mergenthaler. 2016. Financial statement comparability and the efficiency of acquisition decisions. Working paper, University of Illinois at Urbana-Champaign, University of Iowa, and University of Connecticut.

Dechow, P. M., and I. Dichev. 2002. The quality of accruals and earnings: The role of accrual estimation errors. *The Accounting Review* 77 (Supplement): 35-59.

DeFond, M., X. Hu, M. Hung, and S. Li. 2011. The impact of mandatory IFRS adoption on foreign mutual fund ownership: The role of comparability. *Journal of Accounting and Economics*, 51(3): 240-258.

De Franco, G., S. P. Kothari, and R. S. Verdi, 2011. The benefits of financial statement comparability. *Journal of Accounting Research* 49(4): 895-931.

Denis, D. J., and V. Sibilkov. 2010. Financial constraints, investment, and the value of cash holdings. *Review of Financial Studies* 23(1): 247-269.

Dittmar, A., and J. Mahrt-Smith. 2007. Corporate governance and the value of cash holdings. *Journal of Financial Economics* 83(3): 599-634.

Dittmar, A., J. Mahrt-Smith, and H. Servaes. 2003. International corporate governance and corporate cash holdings. *Journal of Financial and Quantitative analysis*, 38(1): 111-133.

Easley, D., and M. O'hara. 2004. Information and the cost of capital. *The Journal of finance*, 59(4): 1553-1583.

Fang, V. W., M. Iselin, and G. Zhang. 2016. Financial statement comparability: Benefits and costs. Working Paper. University of Minnesota.

Fang, X., Y. Li, B. Xin, and W. Zhang. 2016. Financial statement comparability and debt contracting: Evidence from the syndicated loan market. *Accounting Horizons*, 30(2): 277-303.

Fama, E. F., and K. R. French. 1993. Common risk factors in the returns on stocks and bonds. *Journal of Financial Economics* 33(1): 3-56.

Fama, E. F., and K. R. French. 1998. Taxes, financing decisions, and firm value. *The Journal of Finance* 53(3): 819-843.

FASB. 1980. Statement of financial accounting concepts no. 8. Conceptual framework for financial reporting.

Faulkender, M., and R. Wang. 2006. Corporate financial policy and the value of cash. *The Journal of Finance* 61(4): 1957-1990.

Francis, J., R. LaFond, P. Olsson, and K. Schipper. 2005. The market pricing of accruals quality. *Journal of Accounting and Economics* 39(2): 295-327.

Gao, X., and Y. Jia. 2015. Internal control over financial reporting and the safeguarding of corporate resources: Evidence from the value of cash holdings. *Contemporary Accounting Research* 33(2): 783-814.

Givoly, D., and C. Hayn. 2000. The changing time-series properties of earnings, cash flows and accruals: Has financial reporting become more conservative?. *Journal of accounting and economics*, 29(3): 287-320.

Gompers, P., J. Ishii, and A. Metrick. 2003. Corporate governance and equity prices. *The quarterly journal of economics*, 118(1): 107-156.

Gow, I. D., G. Ormazabal, D. J. Taylor. 2010. Correcting for cross-sectional and time-series dependence in accounting research. *The Accounting Review*, 85(2). 483-512.

Harford, J. 1999. Corporate cash reserves and acquisitions. *The Journal of Finance*, 54(6): 1969-1997.

Hölmstrom, B. 1979. Moral hazard and observability. *The Bell Journal of Economics* 10(1): 74-91.

IFRS. 2010. The conceptual framework for financial reporting. IFRS Foundation.

Jensen, M. C. 1986. Agency costs of free cash flow, corporate finance, and takeovers. *The American economic review*, *76*(2): 323-329.

Kothari, S. P., A. J. Leone, and C. E. Wasley. 2005. Performance matched discretionary accrual measures. *Journal of Accounting and Economics* 39(1): 163-197.

Harford, J., S. A. Mansi; and W. F. Maxwell. 2008. Corporate governance and firm cash holdings in the US. *Journal of Financial Economics* 87(3): 535-555.

Kim, S., P. Kraft, and S. G. Ryan. 2013. Financial statement comparability and credit risk. *Review of Accounting Studies* 18(3): 783-823.

Kim, J. B., J. J. Lee, and J. C. Park. 2015. Audit quality and the market value of cash holdings: The case of office-level auditor industry specialization. *Auditing: A Journal of Practice & Theory* 34(2): 27-57.

Kim, J. B., L. Li, L. Lu, and Y. Yu. 2016. Financial statement comparability and expected crash risk. *Journal of Accounting and Economics* 61(2): 294-312.

Lang, M., K. V. Lins, & M. Maffett. 2012. Transparency, liquidity, and valuation: International evidence on when transparency matters most. *Journal of Accounting Research*, 50(3): 729-774.

Louis, H., A. X. Sun, and O. Urcan. 2012. Value of cash holdings and accounting conservatism. *Contemporary Accounting Research* 29(4): 1249-1271.

Ohlson, J. A. 1995. Earnings, book values, and dividends in equity valuation. *Contemporary accounting research*, 11(2): 661-687.

Opler, T., L. Pinkowitz, R. Stulz, and R. Williamson. 1999. The determinants and implications of corporate cash holdings. *Journal of financial economics*, 52(1): 3-46.

Ozkan, N., Z. Singer, and H. You. 2012. Mandatory IFRS adoption and the contractual usefulness of accounting information in executive compensation. *Journal of Accounting Research*, 50(4): 1077-1107.

Masulis, R. W., C. Wang, and F. Xie. 2009. Agency problems at dual-class companies. *The Journal of Finance*, 64(4): 1697-1727.

McNichols, M. F. 2002. Discussion of the quality of accruals and earnings: The role of accrual estimation errors. *The Accounting Review* 77 (Supplemented): 61-69.

Petersen, M. A. 2009. Estimating standard errors in finance panel data sets: Comparing approaches. *The Review of Financial Studies*, 22(1): 435-480.

Pinkowitz, L., R. Stulz, and R. Williamson. 2006. Does the contribution of corporate cash holdings and dividends to firm value depend on governance? A cross-country analysis. *The Journal of Finance* 61(6): 2725-2751.

Pinkowitz, L., and R. Williamson. 2002. What is a dollar worth? The market value of cash holdings. Working paper. Georgetown University.

Shleifer, A., and R. W. Vishny. 1989. Management entrenchment: The case of manager-specific investments. *Journal of financial economics*, 25(1): 123-139.

Sun, Q., K. Yung, and H. Rahman. 2012. Earnings quality and corporate cash holdings. *Accounting & Finance*, 52(2): 543-571.

Young, S., and Y. Zeng. 2015. Accounting comparability and the accuracy of peer-based valuation models. *The Accounting R eview*, 90(6): 2571-2601.

APPENDIX: DEFINITION OF VARIABLES

Variable	Definition	Data Source
$CompAcct_{i,t}$	$CompAcct_{i,t}$ is the mean of the negative value of the average absolute difference between the expected earnings using firm *i*'s and *j*'s accounting function. Specifically, $-\frac{1}{16}\times\sum_{t-15}^{t}\lvert E(earnings_{i,i,t})-E(\text{earnings}_{i,j,t})\rvert$	CRSP/ COMPUSTAT
$CompAcctIndmed_{i,t}$	The median $CompAcct_{i,t}$ for all firm *i*'s industry peers in year *t*, ranked into decile within each fiscal year and rescaled to range between [0, 1]	CRSP/ COMPUSTAT
$CompAcctIndavg_{i,t}$	The mean $CompAcct_{i,t}$ for all firm *i*'s industry peers in year *t*, ranked into decile within each fiscal year and rescaled to range between [0, 1]	CRSP/ COMPUSTAT
$CompAcct4_{i,t}$	The mean $CompAcct_{i,t}$ for 4 firms that have the highest $CompAcct$ in firm *i*'s industry in year *t*, ranked into decile within each fiscal year and rescaled to range between [0, 1]	CRSP/ COMPUSTAT
$MV_{i,t}$	Market value at time *t*, price times shares outstanding plus total liabilities	CRSP/ COMPUSTAT
$r_{i,t}$ - $R^{B}_{i,t}$	Annual excess return measured over 12-month period ending three months after the fiscal year-end minus benchmark portfolio return during the same period. The benchmark portfolio return is measured by the equally weighted average return of Fama and French's (1993) 25 size and book-to-market portfolio	CRSP
$ADJ\_ROA_{i,t}$	Operating income before depreciation deflated by total asset net of cash (ROA) in year *t* minus industry average operating income before depreciation deflated by total asset net of cash (Industry-average ROA) in year *t*. Fama-French 48 Industry classification is used to estimate industry- average ROA.	COMPUSTAT
$Capexp_{i,t}/NA_{i,t-1}$	Capital expenditure deflated by total asset net of cash in year *t*. For firms that do not report capital expenditure, I assumed it to be zero.	COMPUSTAT

Variable	Definition	Data Source
Control Variables		
$\Delta C_{i,t}/M_{i,t-1}$	Change in cash and cash equivalent from year *t-1* to year t, deflated by the market value of equity in year *t-1*	CRSP/ COMPUSTAT
$\Delta E_{i,t}/M_{i,t-1}$	Change in earnings before extraordinary item from year *t-1* to year *t*, deflated by the market value of equity in year *t-1*	CRSP/ COMPUSTAT
$\Delta NA_{i,t}/M_{i,t-1}$	Change in total asset net of cash and cash equivalent from year *t-1* to year *t*, deflated by the market value of equity in year *t-1*	CRSP/ COMPUSTAT
$\Delta RD_{i,t}/M_{i,t-1}$	Change in R&D expenditure from year *t-1* to year *t*, deflated by the market value of equity in year *t-1*	CRSP/ COMPUSTAT
$\Delta I_{i,t}/M_{i,t-1}$	Change in interest expense from year *t-1* to year *t*, deflated by the market value of equity in year *t-1*	CRSP/ COMPUSTAT
$\Delta D_{i,t}/M_{i,t-1}$	Change in common dividend from year *t-1* to year *t*, deflated by the market value of equity in year *t-1*	CRSP/ COMPUSTAT
$L_{i,t}$	$Debt_{i,t}/(Debt_{i,t} + M_{i,t})$ $Debt_{i,t}$ = Long term debt plus short term debt in year *t* $M_{i,t}$ = Market value of equity in year *t*	CRSP/ COMPUSTAT
$NF_{i,t}/M_{i,t-1}$	Net new equity issue in year t plus net new debt issues in year *t*, deflated by market value of equity in year *t*.	CRSP/ COMPUSTAT
$E_{i,t}/NA_{i,t-1}$	Earnings before extraordinary item from year *t-1* to year t, deflated by total asset net of cash in year *t-1*	COMPUSTAT
$dE_{i,t}/NA_{i,t-1}$	Change in Earnings before extraordinary item from year *t-2* to t, deflated by total asset net of cash in year *t-1*	COMPUSTAT
$dE_{i,t+2}/NA_{i,t-1}$	Change in Earnings before extraordinary item from year t to t+2, deflated by total asset net of cash in year *t-1*	COMPUSTAT
$RD_{i,t}/NA_{i,t-1}$	R&D expenditure in year *t*, deflated by total asset net of cash in year *t-1*	COMPUSTAT
$dRD_{i,t}/NA_{i,t-1}$	Change in R&D expenditure from year *t-2* to *t*, deflated by total asset net of cash in year *t-1*	COMPUSTAT
$dRD_{i,t+2}/NA_{i,t-1}$	Change in R&D expenditure from year t to *t+2*, deflated by total asset net of cash in year *t-1*	COMPUSTAT

Variable	Definition	Data Source
$D_{i,t}/NA_{i,t-1}$	Dividend in year t, deflated by total asset net of cash in year *t-1*	COMPUSTAT
$dD_{i,t}/NA_{i,t-1}$	Change in Dividend from year *t-2* to year *t*, deflated by total asset net of cash in year *t-1*	COMPUSTAT
$dD_{i,t+2}/NA_{i,t-1}$	Change in Dividend from year *t* to year *t+2*, deflated by total asset net of cash in year *t-1*	COMPUSTAT
$I_{i,t}/NA_{i,t-1}$	Interest expense in year *t*, deflated by total asset net of cash in year *t-1*	COMPUSTAT
$dI_{i,t}/NA_{i,t-1}$	Interest expense from year *t-2* to year *t*, deflated by total asset net of cash in year *t-1*	COMPUSTAT
$dI_{i,t+2}/NA_{i,t-1}$	Interest expense from year *t* to year *t+2*, deflated by total asset net of cash in year *t-1*	COMPUSTAT
$dNA_{i,t}/NA_{i,t-1}$	Change in total asset net of cash from year *t-2* to year *t*, deflated by total asset net of cash in year *t-1*	COMPUSTAT
$dNA_{i,t+2}/NA_{i,t-1}$	Change in total asset net of cash from year *t* to year *t+2*, deflated by total asset net of cash in year *t-1*	COMPUSTAT
$dMV_{i,t+2}/NA_{i,t-1}$	Change in market value from year t to year *t+2*, deflated by total asset net of cash in year *t-1*	COMPUSTAT
$\mathrm{Ln}(\mathrm{NA}_{i,t})$	Natural logarithm of total asset net of cash in year *t*.	COMPUSTAT
$PPE_{i,t}/NA_{i,t-1}$	Gross property, plant, and equipment deflated by asset net of cash in year *t*	COMPUSTAT
$OCF_{i,t}/NA_{i,t-1}$	Operating cash flow deflated by total asset net of cash in year *t*	COMPUSTAT
$MTB_{i,t}$	Market value of equity deflated by book value of equity in year *t*	COMPUSTAT
$Growth_{i,t}$	The percentage change in gross sales from year *t-1* to year *t*	COMPUSTAT
$Gov_{i,t}$	Gompers et al. (2003) corporate governance index from 1990 to 2006, which measures the number of antitakeover provision in a firm's charter and in the legal code of the state in which the firm is incorporated. For the years that the data for corporate governance index is not reported, I have assumed the index to be equivalent to the that of previous year. I constructed a dummy variable by first forming tercile and second deleting the second tercile group. To facilitate economic interpretation, I adjusted the measure so that the higher index (i.e., $Gov_{i,t}$ = 1) indicates a better governance.	Professor Metrick's Homepage

Variable	Definition	Data Source
$AQ_{i,t}$	Modified Accrual Quality measure (McNichols 2002) in year *t*. Specifically, it is standard deviation of residual over years *t-2* through t from following specification: $TCA_{i,t}/Asset_{i,t} = \alpha_0+\alpha_0 CFO_{i,t-1}/Asset_{i,t} +\alpha_1 CFO_{i,t}/Asset_{i,t} +\alpha_2 CFO_{i,t+1}/Asset_{i,t} +\alpha_3 \Delta REV_{i,t}/Asset_{i,t} +\alpha_4 PPE_{i,t}/Asset_{i,t} +\varepsilon_{i,t}$ $TCA_{i,t}$: Total current accrual in year t $Asset_{i,t}$: Average asset from year *t-1* to year *t* $CFO_{i,t}$: Cash flow from operation in year t $\Delta REV_{i,t}$: Change in revenue from year *t-1* to year *t* $PPE_{i,t}$: Gross value of PPE in year *t* The raw variable is decile-ranked within each fiscal year and normalized so that it ranges between [0, 1].	COMPUSTAT
$CONSERV_{i,t}$	Following Givoly and Hayn (2000), the negative of the ratio of non-operating accruals to total assets cumulated over the previous three years. Nonoperating accruals are defined as net income plus depreciation minus cash flow from operations minus changes in accounts receivable minus change in inventories minus change in prepaid expenses plus change in accounts payable plus change in tax payable. The raw variable is decile-ranked within each fiscal year and normalized so that it ranges between [0, 1].	COMPUSTAT

Table 1. Descriptive statistics and sample distribution

Panel A: Summary statistics

Variable	N	Mean	Std. Dev.	Q1	Median	Q3
$CompAcctIndmed_{i,t}$	37,995	-2.734	2.957	-3.044	-1.764	-1.153
$CompAcctIndavg_{i,t}$	37,995	-3.508	2.698	-4.023	-2.812	-2.045
$CompAcct4_{i,t}$	37,995	-0.741	1.520	-0.696	-0.275	-0.125
$r_{i,t}$	37,995	0.191	0.829	-0.204	0.070	0.368
$r_{i,t}$ - $R^{B}_{i,t}$	37,995	0.009	0.579	-0.317	-0.072	0.192
$\Delta C_{i,t}/M_{i,t-1}$	37,995	0.009	0.127	-0.025	0.002	0.035
$\Delta E_{i,t}/M_{i,t-1}$	37,995	0.014	0.200	-0.031	0.006	0.039
$\Delta NA_{i,t}/M_{i,t-1}$	37,995	0.057	0.390	-0.033	0.036	0.140
$\Delta RD_{i,t}/M_{i,t-1}$	37,995	0.000	0.022	0	0	0.002
$\Delta I_{i,t}/M_{i,t-1}$	37,995	0.001	0.020	-0.002	0	0.003
$\Delta D_{i,t}/M_{i,t-1}$	37,995	0.000	0.009	0	0	0.004
$L_{i,t}$	37,995	0.237	0.225	0.037	0.180	0.379
$NF_{i,t}/M_{i,t-1}$	37,995	0.030	0.203	-0.034	0.001	0.060
$AQ_{i,t}$	33,398	0.044	0.056	0.016	0.029	0.052
$CONSERV_{i,t}$	18,205	0.023	0.094	-0.001	0.017	0.040
$GOV_{i,t}$	11,905	9.270	2.718	7.000	9.000	11.000

Note: Table 1 presents the descriptive statistics of variables used in the empirical analyses. The sample is comprised of 34,211 firm-year observations over the period of 1990-2013 except for accrual quality measure, conservatism measure, and governance measure, which are comprised of 33,398, 18,205, and 11,905 firm-year observation over the period of 1990-2013 respectively. All the continuous variables are winsorized at 1 percentile and 99 percentiles. See Appendix for variable definition.

Panel B: Sample distribution across fiscal year

	1990	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**
N	1,394	1,541	1,601	1,617	1,628	1,638	1,703	1,707	1,725	1,673	1,598	1,618
%	3.67	4.06	4.21	4.26	4.28	4.31	4.48	4.49	4.54	4.40	4.21	4.26
	2002	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
N	1,611	1,626	1,624	1,656	1,621	1,546	1,473	1,481	1,496	1,512	1,504	1,402
%	4.24	4.28	4.27	4.36	4.27	4.07	3.88	3.90	3.94	3.98	3.96	3.69

Note: This table presents the sample distribution over fiscal year. The sample is comprised of 37,995 firm-year observations over the period of 1990-2013.

Table 2. Pearson and Spearman correlation matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) $CompAcctIndmed_{i,t}$	1.000	0.911 (<.0001)	0.710 (<.0001)	0.032 (<.0001)	-0.034 (<.0001)	0.218 (<.0001)	0.060 (<.0001)	0.069 (<.0001)	0.282 (<.0001)	-0.040 (<.0001)	0.004 (0.4034)
(2) $CompAcctIndavg_{i,t}$	0.976 (<.0001)	1.000	0.604 (<.0001)	0.010 (0.0884)	-0.036 (<.0001)	0.211 (<.0001)	0.044 (<.0001)	0.097 (<.0001)	0.244 (<.0001)	0.008 (0.1367)	0.034 (<.0001)
(3) $CompAcct4_{i,t}$	0.831 (<.0001)	0.827 (<.0001)	1.000	0.033 (<.0001)	-0.036 (<.0001)	0.160 (<.0001)	0.126 (<.0001)	0.051 (<.0001)	0.239 (<.0001)	-0.208 (<.0001)	0.009 (0.092)
(4) $\Delta C_{i,t}/M_{i,t-1}$	0.003 (0.599)	-0.013 (0.0202)	-0.028 (<.0001)	1.000	0.153 (<.0001)	-0.096 (<.0001)	-0.003 (0.5985)	-0.011 (0.0581)	0.008 (0.1345)	-0.036 (<.0001)	0.116 (<.0001)
(5) $\Delta E_{i,t}/M_{i,t-1}$	-0.157 (<.0001)	-0.149 (<.0001)	0.1245 (<.0001)	0.137 (<.0001)	1.000	0.126 (<.0001)	-0.067 (<.0001)	-0.117 (<.0001)	0.029 (<.0001)	-0.074 (<.0001)	-0.072 (<.0001)
(6) $\Delta NA_{i,t}/M_{i,t-1}$	0.156 (<.0001)	0.140 (<.0001)	0.101 (<.0001)	-0.065 (<.0001)	0.010 (0.0782)	1.000	0.149 (<.0001)	0.297 (<.0001)	0.146 (<.0001)	0.068 (<.0001)	0.427 (<.0001)
(7) $\Delta RD_{i,t}/M_{i,t-1}$	0.106 (<.0001)	0.088 (<.0001)	0.045 (<.0001)	0.009 (0.1397)	-0.169 (<.0001)	0.161 (<.0001)	1.000	0.047 (<.0001)	0.051 (<.0001)	-0.102 (<.0001)	0.039 (<.0001)
(8) $\Delta I_{i,t}/M_{i,t-1}$	0.050 (<.0001)	0.059 (<.0001)	0.046 (<.0001)	0.019 (0.001)	-0.146 (<.0001)	0.367 (<.0001)	0.045 (<.0001)	1.000	0.010 (0.0602)	0.162 (<.0001)	0.357 (<.0001)
(9) $\Delta D_{i,t}/M_{i,t-1}$	0.021 (0.0003)	0.013 (0.0247)	0.024 (<.0001)	-0.027 (<.0001)	-0.007 (0.2068)	0.109 (<.0001)	0.041 (<.0001)	0.014 (0.012)	1.000	-0.016 (0.0043)	0.043 (<.0001)
(10) $L_{i,t}$	-0.138 (<.0001)	-0.108 (<.0001)	-0.196 (<.0001)	-0.020 (0.0007)	-0.028 (<.0001)	0.036 (<.0001)	-0.018 (0.0016)	0.129 (<.0001)	-0.079 (<.0001)	1.000	0.080 (<.0001)
(11) $NF_{i,t}/M_{i,t-1}$	-0.026 (<.0001)	-0.012 (0.0339)	-0.015 (0.0121)	0.177 (<.0001)	-0.072 (<.0001)	0.531 (<.0001)	0.045 (<.0001)	0.385 (<.0001)	0.030 (<.0001)	0.119 (<.0001)	1.000

Note: This table reports the Pearson and Spearman correlation coefficients of main variables. The sample is comprised of 37,995 firm-year observations over the period of 1990-2013. The numbers reported in the parenthesis are p-values

Table 3. The effect of financial statement comparability on the value of cash holdings:

	Dependent Variable = Annual excess return ($r_{i,t}$ - $R^{B}_{i,t}$)							
	(1)Benchmark		*(2)CompAcctIndmed*		*(3)CompAcctIndavg*		*(4)CompAcct4*	
	Coeff.	*t-value*	*Coeff.*	*t-value*	*Coeff.*	*t-value*	*Coeff.*	*t-value*
$\Delta C_{i,t}/M_{i,t-1}$	1.001***	22.95	0.855***	15.62	0.875***	16.01	0.835***	14.44
$\Delta E_{i,t}/M_{i,t-1}$	0.396***	29.20	0.400***	29.82	0.397***	29.58	0.399***	29.59
$\Delta NA_{i,t}/M_{i,t-1}$	0.201***	25.72	0.181***	23.69	0.189***	24.44	0.187***	24.46
$\Delta RD_{i,t}/M_{i,t-1}$	0.210*	1.84	0.206*	1.78	0.186	1.61	0.176	1.53
$\Delta I_{i,t}/M_{i,t-1}$	-0.757***	-5.62	-0.791***	-5.88	-0.788***	-5.87	-0.825***	-6.11
$\Delta D_{i,t}/M_{i,t-1}$	0.961***	4.32	1.092***	4.99	1.097***	5.00	1.024***	4.70
$C_{i,t-1}/M_{i,t-1}$	0.109***	10.08	0.143***	12.86	0.131***	11.84	0.137***	12.34
$L_{i,t-1}$	-0.285***	-27.19	-0.242***	-22.88	-0.255***	-24.16	-0.246***	-23.13
$NF_{i,t}/M_{i,t-1}$	-0.232***	-15.47	-0.200***	-13.48	-0.213***	-14.26	-0.211***	-14.19
$C_{i,t}/M_{i,t-1}\times\Delta C_{i,t}/M_{i,t-1}$	-0.443***	-7.93	-0.338***	-5.70	-0.345***	-5.81	-0.330***	-5.55
$L_{i,t-1}\times\Delta C_{i,t}/M_{i,t-1}$	-0.635***	-7.14	-0.640***	-7.18	-0.656***	-7.35	-0.575***	-6.38
$COMPACCT_{i,t}$			0.139***	18.05	0.110***	13.98	0.109***	14.90
$COMPACCT_{i,t}\times\Delta C_{i,t}/M_{i,t-1}$			**0.311****	4.03	**0.272****	3.64	**0.339****	4.09
Year & Industry Fixed Effect	Yes		Yes		Yes		Yes	
Observations	37,995		37,995		37,995		37,995	
Adj. R^2	0.181		0.183		0.179		0.180	

Note: This table shows the regression results of hypothesis 1 using the Faulkender and Wang (2005) specification, investigating the effect of financial statement comparability on the value of cash holdings. The sample is comprised of 37,995 firm-year observations over the period of 1990-2013. All the continuous variables are winsorized at top and bottom one-percentile. Comparability measures are ranked into deciles within each fiscal year and rescaled to range between [0,1]. To adjust for heteroscedasticity, standard errors are clustered by firm. *, **, and *** denote statistical significance at a 0.10, a 0.05, and a 0.01 level respectively. See Appendix for other variable definition. The variable of interest is bolded and shaded

Table 4. The effect of financial statement comparability on the value of excess cash using modified Fama and French (1998) Specification

	Dependent Variable = Market Value / Book Value ($MV_{i,t}/NA_{i,t}$)							
	(1)Benchmark		*(2)CompAcctIndmed*		*(3)CompAcctIndavg*		*(4)CompAcct4*	
	Coeff.	*t-value*	*Coeff.*	*t-value*	*Coeff.*	*t-value*	*Coeff.*	*t-value*
$E_{i,t}/NA_{i,t-1}$	1.739***	20.77	0.956***	11.45	1.599***	22.15	0.727***	9.09
$dE_{i,t}/NA_{i,t-1}$	0.088	1.94	0.250***	5.06	0.181***	3.93	0.345***	6.69
$dE_{i,t+2}/NA_{i,t-1}$	-0.658***	-13.74	-0.365***	-7.94	-0.668***	-14.65	-0.381***	-8.29
$RD_{i,t}/NA_{i,t-1}$	4.371***	43.40	4.747***	40.90	4.259***	48.27	4.552***	40.22
$dRD_{i,t}/NA_{i,t-1}$	0.608***	5.07	0.839***	5.66	0.631***	5.40	0.422***	2.81
$dRD_{i,t+2}/NA_{i,t-1}$	-3.426***	-36.90	-2.611***	-23.29	-3.430***	-36.43	-2.479***	-24.50
$D_{i,t}/NA_{i,t-1}$	8.422***	12.31	7.379***	10.29	7.351***	15.26	6.681***	9.45
$dD_{i,t}/NA_{i,t-1}$	1.282	1.11	2.277*	1.93	1.806*	1.90	2.284**	2.04
$dD_{i,t+2}/NA_{i,t-1}$	-6.798***	-9.43	-6.493***	-8.65	-6.341***	-9.72	-5.871***	-8.20
$I_{i,t}/NA_{i,t-1}$	-1.371**	-2.19	0.010	0.02	-0.370	-0.77	0.801	1.32
$dI_{i,t}/NA_{i,t-1}$	-0.344	-0.54	-1.968***	-3.18	-0.986*	-1.75	-2.078***	-3.42
$dI_{i,t+2}/NA_{i,t-1}$	3.116***	6.39	4.450***	8.72	2.990***	6.32	4.507***	9.33
$dNA_{i,t}/NA_{i,t-1}$	1.371***	43.34	1.374***	43.78	1.352***	43.17	1.369***	43.03
$dNA_{i,t+2}/NA_{i,t-1}$	-0.382***	-18.92	-0.432***	-21.17	-0.373***	-19.63	-0.455***	-22.59
$dMV_{i,t+2}/NA_{i,t-1}$	0.013***	2.73	-0.028***	-5.87	0.010**	2.18	-0.019***	-3.96
$XC_{i,t}/NA_{i,t-1}$	1.667***	30.86	1.045***	11.57	1.506***	18.92	0.974***	10.50
$COMPACCT_{i,t}$			0.328***	7.27	0.307***	9.26	0.549***	10.51
$COMPACCT_{i,t} \times XC_{i,t}/NA_{i,t-1}$			**1.344*** **	**6.54**	**0.439*** **	**2.90**	**1.380*** **	**8.35**
Year & Industry Fixed Effect	Yes		Yes		Yes		Yes	
Observations	12,809		12,809		12,809		12,809	
Adj. R^2	0.845		0.867		0.847		0.866	

Note: This table shows the regression results about the effect of financial statement comparability on the value of excess cash using the Fama and French (1998) specification. Consistent with Dittmar and Mahrt-Smith (2007), I restrict the sample to firms that have excess cash in year t. The sample is comprised of 34,211 firm-year observations over the period of 1990-2013. All the continuous variables are winsorized at top and bottom one-percentile. Comparability measures are ranked into deciles within each fiscal year and rescaled to range between [0,1]. To adjust for heteroscedasticity, standard errors are clustered by firm. *, **, and *** denote statistical significance at a 0.10, a 0.05, and a 0.01 level respectively. See Appendix for other variable definition. The variable of interest is bolded and shaded.

Table 5. Financial statement comparability and the relation between the use of cash on subsequent operating performance

Panel A.

	Dependent Variable = Industry adjusted ROA(= $ADJ\_ROA_{i,t+4}$)					
	(1) CompAcctIndavg		*(2)CompAcctIndavg*		*(3) CompAcct4*	
Variable	***Coeff.***	***t-value***	***Coeff.***	***t-value***	***Coeff.***	***t-value***
$\Delta C_{i,t+1}/NA_{i,t}$	0.127***	7.14	0.130***	6.81	0.093***	5.39
$XC_{i,t}/\mathrm{NA}_{i,t-1}$	0.001	0.37	-0.001	-0.17	-0.005	-1.58
$COMPACCT_{i,t}$	0.000	0.71	0.001*	1.65	0.032***	5.15
$COMPACCT_{i,t} \times \Delta C_{i,t+1}/\mathrm{NA}_{i,t}$	-0.148***	-3.96	-0.128***	-3.45	-0.060**	-1.97
$\mathrm{Ln}(\mathrm{NA}_{i,t})$	0.004***	4.37	0.004***	4.13	0.004***	4.07
$\mathrm{PPE}_{i,t}/\mathrm{NA}_{i,t}$	0.018***	3.80	0.017***	3.69	0.019***	4.05
Industry adjuseted $\mathrm{ROA}_{i,t}$	0.410***	48.03	0.411***	49.73	0.365***	44.19
Year & industry fixed effect	Yes		Yes		Yes	
Observations	5,775		5,775		5,775	
Adj. R^2	0.690		0.691		0.677	

Panel B.

	Independent Variable (=$COMPACCT_{i,t} \times \Delta C_{i,t+1}/\mathrm{NA}_{i,t}$)					
	(1) CompAcctIndavg		***(2)CompAcctIndavg***		***(3)CompAcct4***	
Dependent Variable	***Coeff.***	***t-value***	***Coeff.***	***t-value***	***Coeff.***	***t-value***
ADJ_ROA_{t+1}	0.061***	2.52	0.052	2.20	-0.001	-0.08
ADJ_ROA_{t+2}	-0.004	-0.13	-0.002	-0.06	0.004	0.17
ADJ_ROA_{t+3}	-0.062*	-1.79	0.003	0.09	0.030	1.12
ADJ_ROA_{t+4}	-0.148***	-3.96	-0.128***	-3.45	-0.060**	-1.97
ADJ_ROA_{t+5}	-0.197***	-4.91	-0.104**	-2.49	-0.101***	-2.99
ADJ_ROA_{t+6}	-0.069	-1.47	-0.009	-0.19	-0.039	-1.01

Note: Table 5 shows the regression results about the effect of financial statement comparability on the relation between use of cash and subsequent operating performance, measured by industry-adjusted return on asset (ADJ_ROA). I restrict the sample to firms that have excess cash at year t and reduced their cash over year t and year t+1. Panel A shows the effect of financial statement comparability on the relation between use of cash and industry-adjusted return on asset in year t+4 (ADJ_ROA_{t+4},). The sample is comprised of 5,775 firm-year observations over the period of 1990-2013. Panel B shows the coefficient of $COMPACCT_{i,t} \times \Delta C_{i,t+1}/\mathrm{NA}_{i,t}$ for the regression model with varying dependent variables (i.e., ADJ_ROA_{t+1}, ADJ_ROA_{t+2}, ADJ_ROA_{t+3}, ADJ_ROA_{t+4}, ADJ_ROA_{t+5}, and ADJ_ROA_{t+6}). All the continuous variables are winsorized at top and bottom one-percentile. Comparability measures are ranked into deciles within each fiscal year and rescaled to range between [0,1]. To adjust for heteroscedasticity, standard errors are clustered by firm. *, **, and *** denote statistical significance at a 0.10, a 0.05, and a 0.01 level respectively. See Appendix for other variable definition. The variable of interest is bolded.

Table 6. The effect of comparability on the investment sensitivity to corporate cash holdings

	Dependent Variable = Capital Expenditure ($Capexp_{i,t+1}/NA_{i,t}$)					
	(1)CompAcctIndavg		*(2)CompAcctIndavg*		*(3) CompAcct4*	
Variable	***Coeff.***	***t-value***	***Coeff.***	***t-value***	***Coeff.***	***t-value***
$C_{i,t}/NA_{i,t-1}$	0.049***	9.70	0.017***	12.02	0.011***	5.83
$C_{i,t}/NA_{i,t-1}$×$COMPACCT_{i,t}$	0.046***	3.50	0.056***	9.85	0.049***	9.71
$OCF_{i,t}/NA_{i,t-1}$	0.026***	5.34	0.036***	17.65	0.036***	17.23
$MTB_{i,t}$	0.000**	2.02	0.000**	2.75	0.000***	3.10
$Growth_t$	0.012***	6.51	0.002**	2.17	0.002***	2.46
Year & industry fixed effect	Yes		Yes		Yes	
Observations	30,470		30,470		30,470	
Adj. R^2	0.282		0.288		0.287	

Note: Table 6 shows the regression result about the effect of comparability on the investment sensitivity to corporate cash holdings. The investment is proxied by capital expenditure of year t+1. To address for endogeneity between capital expenditure and cash level, this table uses two-staged least squares (2SLS) regression motivated by Denis and Sibilkov (2010). The sample is comprised of 30,470 firm-year observations over the period of 1990-2013 for each regression model. Comparability measures are ranked into deciles within each fiscal year and rescaled to range between [0,1]. All the continuous variables are winsorized at top and bottom one-percentile. To adjust for heteroscedasticity, standard errors are clustered by firm. *, **, and *** denote statistical significance at a 0.10, a 0.05, and a 0.01 level respectively. See Appendix for other variable definition. The variable of interest is bolded and shaded.

Table 7. The effect of comparability on the market value of capital expenditure

	Dependent Variable = Annual excess return ($r_{i,t}$ - $R^B_{i,t}$)							
	(1)Benchmark		*(2)CompAcctInd med*		*(3)CompAcctInd avg*		*(4)CompAcct4*	
	Coeff.	*t-value*	*Coeff.*	*t-value*	*Coeff.*	*t-value*	*Coeff.*	*t-value*
$\Delta\mathbf{Capexp}_{i,t}/\mathbf{M}_{i,t-1}$	-0.010	-0.17	-0.028	-0.39	-0.055	-0.82	-0.078	-1.16
$\Delta\boldsymbol{E}_{i,t}/\mathbf{M}_{i,t-1}$	0.641 ***	25.31	0.630***	25.54	0.629***	26.27	0.626***	25.10
$\Delta\mathbf{NA}_{i,t}/\mathbf{M}_{i,t\text{-}1}$	0.184***	15.68	0.171***	14.75	0.178***	15.97	0.176***	15.18
$\Delta\mathbf{RD}_{i,t}/\mathbf{M}_{i,t-1}$	0.076	0.35	0.103	0.48	0.091	0.44	0.144	0.67
$\Delta\mathbf{I}_{i,t}/\mathbf{M}_{i,t-1}$	-1.112***	-5.19	-1.212***	-5.63	-1.192***	-5.68	-1.173***	-5.44
$\Delta\mathbf{D}_{i,t}/\mathbf{M}_{i,t\text{-}1}$	1.735***	4.92	1.789***	5.09	1.862***	5.60	1.743***	4.94
$\mathbf{Capexp}_{i,t-1}/\mathbf{M}_{i,t-1}$	0.370 ***	8.37	0.373***	8.73	0.367 ***	9.00	0.383***	8.86
$\mathbf{L}_{i,t-1}$	-0.72***	-21.77	-0.330***	-19.45	-0.346***	-20.98	-0.344***	-20.00
$\mathbf{NF}_{i,t}/\mathbf{M}_{i,t-1}$	-0.125***	-5.96	-0.101***	-4.90	-0.113***	-5.66	-0.116***	-5.61
$\boldsymbol{COMPACCT}_{i,t}$			0.124***	11.21	0.092***	8.06	0.081***	7.83
$\boldsymbol{COMPACCT}_{i,t}\times\Delta\mathbf{Capexp}_{i,t}/\mathbf{M}_{i,t-1}$			**0.268***	1.73	**0.334****	2.35	**0.474*****	2.78
Year & Industry Fixed Effect	Yes		Yes		Yes		Yes	
Observations	19,214		19,214		19,214		19,214	
Adj. R^2	0.168		0.174		0.171		0.170	

Note: Table 7 shows the regression results about the effect of comparability on the market value of capital expenditure. Motivated by Masulis et al. (2009), I use modified Faulkender and Wang (2005) specification to estimate the market value of capital expenditure. I restrict firms to have at least 5% increase in the capital expenditure from year *t-1* to year t. The sample is comprised of 19,214 firm-year observations over the period of 1990-2013. All the continuous variables are winsorized at top and bottom one-percentile. Comparability measures are ranked into deciles within each fiscal year and rescaled to range between [0,1]. To adjust for heteroscedasticity, standard errors are clustered by firm. *, **, and *** denote statistical significance at a 0.10, a 0.05, and a 0.01 level respectively. See Appendix for other variable definition. The variable of interest is bolded and shaded.

Table 8. The Impact of Comparability on the Market Value of Cash during Crisis and Non-crisis period

Panel A: Comparability measured by *CompAcctIndmed*

	Non-Crisis Period	*Crisis Period*		
	1990~2007, 2010~2013	*2008~2009*	*Diff.*	*t-value*
$\Delta C_{i,t}/M_{i,t-1}$	0.900	0.357	-0.543***	-3.08
$COMPACCT_{i,t}$	0.143	0.127	-0.016	-0.68
$COMPACCT_{i,t}\times\Delta C_{i,t}/M_{i,t-1}$	**0.214**	**1.415**	**1.201*** **	**4.66**
Observations	35,042	2,953		

Panel B: Comparability measured by *CompAcctIndavg*

	Non-Crisis Period	*Crisis Period*		
	1990~2007, 2010~2013	*2008~2009*	*Diff.*	*t-value*
$\Delta C_{i,t}/M_{i,t-1}$	0.922	0.460	-0.462***	-2.59
$COMPACCT_{i,t}$	0.115	0.094	-0.021	-0.89
$COMPACCT_{i,t}\times\Delta C_{i,t}/M_{i,t-1}$	**0.180**	**1.187**	**1.007*** **	**3.99**
Observations	35,042	2,953		

Panel C: Comparability measured by *CompAcct4*

	Non-Crisis Period	*Crisis Period*		
	1990~2007, 2010~2013	*2008~2009*	*Diff.*	*t-value*
$\Delta C_{i,t}/M_{i,t-1}$	0.854	0.535	-0.319*	-1.74
$COMPACCT_{i,t}$	0.108	0.159	0.051**	2.11
$COMPACCT_{i,t}\times\Delta C_{i,t}/M_{i,t-1}$	**0.318**	**0.833**	**0.515***	**1.95**
Observations	35,042	2,953		

Note: Table 8 shows the regression results about the differential effects of financial statement comparability on the value of cash holdings in crisis and non-crisis period. The sample is comprised of 37,995 firm-year observations over the period of 1990-2013. All the continuous variables are winsorized at top and bottom one-percentile. Comparability measures are ranked into deciles within each fiscal year and rescaled to range between [0,1]. To adjust for heteroscedasticity, standard errors are clustered by firm. *, **, and *** denote statistical significance at a 0.10, a 0.05, and a 0.01 level respectively. See Appendix for other variable definition. The variable of interest is bolded and shaded.

Table 9. The effect of financial statement comparability on the value of cash holdings controlling for corporate governance

Panel A: Modified Faulkender and Wang (2005) specification controlling for corporate goverance

	Dependent Variable = Annual excess return ($r_{i,t}$ - $R^B_{i,t}$)							
	(1)Benchmark		*(2)CompAcctIndmed*		*(3)CompAcctIndavg*		*(4)CompAcct4*	
	Coeff.	*t-value*	*Coeff.*	*t-value*	*Coeff.*	*t-value*	*Coeff.*	*t-value*
$\Delta C_{i,t}/M_{i,t-1}$	0.797***	6.90	0.539***	3.68	0.580***	4.02	0.603***	3.92
$\Delta E_{i,t}/M_{i,t-1}$	0.474***	13.57	0.465***	13.60	0.464***	13.52	0.467***	13.50
$\Delta NA_{i,t}/M_{i,t-1}$	0.167***	10.49	0.164***	10.25	0.167***	10.46	0.168***	10.41
$\Delta RD_{i,t}/M_{i,t-1}$	0.513	1.57	0.492	1.54	0.497	1.56	0.553*	1.69
$\Delta I_{i,t}/M_{i,t-1}$	-1.788***	-6.41	-1.798***	-6.44	-1.788***	-6.39	-1.800***	-6.47
$\Delta D_{i,t}/M_{i,t-1}$	0.685	1.47	0.593	1.27	0.635	1.36	0.616	1.32
$C_{i,t-1}/M_{i,t-1}$	0.112***	4.32	0.112***	4.18	0.105***	3.95	0.113***	4.20
$L_{i,t-1}$	-0.328***	-14.78	-0.311***	-13.60	-0.324***	-14.38	-0.320***	-13.83
$NF_{i,t}/M_{i,t-1}$	-0.178***	-5.08	-0.179***	-5.15	-0.179***	-5.16	-0.180***	-5.19
$C_{i,t}/M_{i,t-1}\times\Delta C_{i,t}/M_{i,t-1}$	-0.400***	-2.78	-0.217	-1.43	-0.235	-1.53	-0.267*	-1.74
$L_{i,t-1}\times\Delta C_{i,t}/M_{i,t-1}$	-0.711***	-3.09	-0.633***	-2.79	-0.673***	-2.96	-0.612***	-2.64
$Gov_{i,t}$	-0.031***	-4.74	-0.030***	-4.56	-0.031***	-4.70	-0.031***	-4.75
$Gov_{i,t}\times\Delta C_{i,t}/M_{i,t-1}$	0.238**	2.21	0.225**	2.12	0.226**	2.12	0.209*	1.95
$COMPACCT_{i,t}$			0.047***	3.07	0.019	1.21	0.021	1.50
$COMPACCT_{i,t}\times\Delta C_{i,t}/M_{i,t-1}$			**0.456****	2.53	**0.377****	2.19	**0.352***	1.93
Year & Industry Fixed Effect	Yes		Yes		Yes		Yes	
Observations	7,941		7,941		7,941		7,941	
Adj. R^2	0.154		0.186		0.186		0.186	

Panel B: The differential effect of financial statement comparability on value of cash holdings in strong and week corporate governance firms

	Corporate Governance			
	Week		***Strong***	
Varables	***Coeff.***	***t-value***	***Coeff.***	***t-value***
$\boldsymbol{CompAcctIndMed_{i,t}}\times\Delta\mathbf{C}_{i,t}/\mathbf{M}_{i,t-1}$	0.368	1.29	0.792***	3.14
$\boldsymbol{CompAcctIndAvg_{i,t}}\times\Delta\mathbf{C}_{i,t}/\mathbf{M}_{i,t-1}$	0.339	1.20	0.580**	2.54
$\boldsymbol{CompAcct4_{i,t}}\times\Delta\mathbf{C}_{i,t}/\mathbf{M}_{i,t-1}$	0.278	1.01	0.562**	2.23

Note: This table shows the regression results about the effect of financial statement comparability on the value of cash holdings controlling for corporate governance. The strength of corporate governance of a firm is measured using G-index proposed by Gompers et al. (2003). Consistent with Dittmar and Mahrt-Smith (2007), I constructed a dummy governance measure by first forming tercile and second deleting the middle tercile group. I adjusted the measure so that higher number indicates a better governance. The sample is comprised of 7,941 firm-year observations over the period of 1990-2013. Panel A reports the effect of financial statement comparability on the value of cash holdings controlling for corporate governance. Panel B reports the differential effect of financial statement comparability on the value of cash holdings in strong corporate governance sub-group and week governance sub-group. All the continuous variables are winsorized at top and bottom one-percentile. Comparability measures are ranked into deciles within each fiscal year and rescaled to range between [0,1]. To adjust for heteroscedasticity, standard errors are clustered by firm. *, **, and *** denote statistical significance at a 0.10, a 0.05, and a 0.01 level respectively. See Appendix for other variable definition. The variable of interest is bolded and shaded.

Table 10. The effect of financial statement comparability on the value of cash holdings controlling for accrual quality

	Dependent Variable = Annual excess return ($r_{i,t}$ - $R^{B}_{i,t}$)							
	(1) Benchmark		*(2) CompAcctInd med*		*(3)CompAcctInd avg*		*(4)CompAcct4*	
	Coeff.	*t-value*	*Coeff.*	*t-value*	*Coeff.*	*t-value*	*Coeff.*	*t-value*
$\Delta C_{i,t}/M_{i,t-1}$	0.875***	15.88	0.756***	11.96	0.784***	12.36	0.708***	10.54
$\Delta E_{i,t}/M_{i,t-1}$	0.435***	29.77	0.436***	30.06	0.433***	29.74	0.436***	30.31
$\Delta NA_{i,t}/M_{i,t-1}$	0.214***	25.00	0.188***	22.09	0.196***	22.91	0.205***	23.77
$\Delta RD_{i,t}/M_{i,t-1}$	0.099	0.79	0.138	1.10	0.114	0.92	0.087	0.69
$\Delta I_{i,t}/M_{i,t-1}$	-0.683***	-4.53	-0.751***	-5.05	-0.735***	-4.96	-0.714***	-4.78
$\Delta D_{i,t}/M_{i,t-1}$	1.169***	4.85	1.200***	5.10	1.199***	5.08	1.128***	4.76
$C_{i,t-1}/M_{i,t-1}$	0.070***	6.29	0.116***	9.86	0.104***	8.97	0.088***	7.64
$L_{i,t-1}$	-0.198***	-20.14	-0.183***	-19.04	-0.192***	-20.02	-0.170***	-16.78
$NF_{i,t}/M_{i,t-1}$	-0.239***	-14.58	-0.195***	-12.13	-0.207***	-12.81	-0.224***	-13.82
$C_{i,t}/M_{i,t-1}\times\Delta C_{i,t}/M_{i,t-1}$	-0.360***	-5.93	-0.278***	-4.29	-0.285***	-4.39	-0.243***	-3.71
$L_{i,t-1}\times\Delta C_{i,t}/M_{i,t-1}$	-0.548***	-5.55	-0.547***	-5.55	-0.569***	-5.76	-0.459***	-4.54
$AQ_{i,t}$	0.108***	16.97	0.077***	11.97	0.084***	13.17	0.094***	14.47
$AQ_{i,t}\times\Delta C_{i,t}/M_{i,t-1}$	0.211***	2.65	0.160**	1.97	0.159**	1.96	0.172**	2.13
$COMPACCT_{i,t}$			0.139***	19.30	0.114***	16.09	0.072***	10.02
$COMPACCT_{i,t}\times\Delta C_{i,t}/M_{i,t-1}$			**0.307****	3.53	**0.252****	3.01	**0.368****	3.98
Year & Industry Fixed Effect	Yes		Yes		Yes		Yes	
Observations	33,398		33,398		33,398		33,398	
Adj. R^2	0.166		0.175		0.173		0.169	

Note: Table 11 shows the regression results about the effect of financial statement comparability on the value of cash holdings controlling for accrual quality. Accrual quality is proxied by modified Dechow and Dichev (2002) accrual quality measure. The accrual quality measure is decile-ranked in each fiscal year and rescaled to range between [0,1]. The sample is comprised of 33,398 firm-year observations over the period of 1990-2013. All the continuous variables are winsorized at top and bottom one-percentile. Comparability measures are ranked into deciles within each fiscal and rescaled to range between [0,1]. To adjust for heteroscedasticity, standard errors are clustered by firm. *, **, and *** denote statistical significance at a 0.10, a 0.05, and a 0.01 level respectively. See Appendix for other variable definition. The variable of interest is bolded.

Table 11. The effect of financial Statement comparability on the value of cash holdings controlling for accounting conservatism

	Dependent Variable = Annual excess return ($r_{i,t}$ - $R^B_{i,t}$)							
	(1) Benchmark		*(2) CompAcctInd med*		*(3)CompAcctInd avg*		*(4)CompAcct4*	
	Coeff.	*t-value*	*Coeff.*	*t-value*	*Coeff.*	*t-value*	*Coeff.*	*t-value*
$\Delta C_{i,t}/M_{i,t-1}$	0.851***	10.72	0.652***	6.75	0.660***	6.70	0.642***	6.65
$\Delta E_{i,t}/M_{i,t-1}$	0.394***	19.62	0.404***	20.36	0.399***	20.16	0.402***	20.31
$\Delta NA_{i,t}/M_{i,t-1}$	0.183***	16.97	0.167***	15.68	0.175***	16.33	0.174***	16.27
$\Delta RD_{i,t}/M_{i,t-1}$	0.433***	2.65	0.428***	2.65	0.4141***	2.54	0.433***	2.68
$\Delta I_{i,t}/M_{i,t-1}$	-0.941***	-4.81	-0.927***	-4.78	-0.974***	-5.01	-0.970***	-4.98
$\Delta D_{i,t}/M_{i,t-1}$	1.017***	3.32	1.062***	3.49	1.057***	3.46	1.099***	3.65
$C_{i,t-1}/M_{i,t-1}$	0.075***	4.92	0.103***	6.44	0.088***	5.54	0.099***	6.23
$L_{i,t-1}$	-0.275***	-17.95	-0.234***	-15.15	-0.249***	-16.02	-0.234***	-14.87
$NF_{i,t}/M_{i,t-1}$	-0.209***	-9.66	-0.189***	-8.81	-0.196***	-9.05	-0.202***	-9.41
$C_{i,t}/M_{i,t-1}\times\Delta C_{i,t}/M_{i,t-1}$	-0.372***	-4.44	-0.231***	-2.58	-0.238***	-2.64	-0.244***	-2.72
$L_{i,t-1}\times\Delta C_{i,t}/M_{i,t-1}$	-0.711***	-5.28	-0.705***	-5.21	-0.697***	-5.06	-0.593***	-4.36
$CONSERV_{i,t}$	-0.032***	-3.57	-0.025***	-2.83	-0.028***	-3.23	-0.027***	-3.12
$CONSERV_{i,t}\times\Delta C_{i,t}/M_{i,t-1}$	0.191**	2.01	0.200**	2.11	0.213**	2.21	0.175*	1.85
$COMPACCT_{i,t}$			0.120***	10.83	0.084***	7.46	0.095***	9.04
$COMPACCT_{i,t}\times\Delta C_{i,t}/M_{i,t-1}$			**0.464****	4.12	**0.400****	3.66	**0.470****	4.03
Year & Industry Fixed Effect	Yes		Yes		Yes		Yes	
Observations	18,205		18,205		18,205		18,205	
Adj. R^2	0.154		0.181		0.176		0.176	

Note: Table 10 shows the regression results about the effect of financial statement comparability on the value of cash holdings controlling for accounting conservatism. Accounting conservatism is proxied by the negative of the ratio of nonoperating accruals to total assets cumulated over the previous three years (Givoly and Hayn 2000). The accounting conservatism measure is decile-ranked in each fiscal year and rescaled to range between [0,1]. The sample is comprised of 18,205 firm-year observations over the period of 1990-2013. All the continuous variables are winsorized at top and bottom one-percentile. Comparability measures are ranked into deciles within each fiscal year and rescaled to range between [0,1]. To adjust for heteroscedasticity, standard errors are clustered by firm. *, **, and *** denote statistical significance at a 0.10, a 0.05, and a 0.01 level respectively. See Appendix for other variable definition. The variable of interest is bolded and shaded.

Table 12. Regression analysis using alternative measure of comparability: Barth et al. (2012)

Panel A: Descriptive statistics for alternative comparability measure

Variable	N	Mean	Std. Dev.	Q1	Median	Q3
$CompAcctIndmed_{i,t}$	27,792	-31.740	42.053	-33.797	-19.861	-11.924
$CompAcctIndavg_{i,t}$	27,792	-48.872	70.055	-48.856	-26.202	-16.227
$CompAcct4_{i,t}$	27,792	-10.920	11.800	-13.195	-7.780	-4.276

Panel B: Regression analysis using modified Faulkender and Wang (2005) specification:

	Dependent Variable = Annual excess return ($r_{i,t}$ - $R^{B}_{i,t}$)		
	(1)CompAcctIndmed	***(2)CompAcctIndavg***	***(3)CompAcct4***
$COMPACCT_{i,t}$	0.106*** (12.34)	0.105*** (12.01)	0.099*** (12.03)
$COMPACCT_{i,t}\times\Delta C_{i,t}/M_{i,t-1}$	**0.730*** (7.08)**	**0.649*** (6.19)**	**0.266*** (2.86)**
Adj. R^2	0.168	0.168	0.166
Observations	27,792	27,792	27,792

Note: Table 12 shows the regression results about the effect of financial statement comparability on the value of cash holdings using alternative definition of comparability. In this alternative definition of comparability, Following Kim et al. (2016), modified Barth et al. (2012) specification is employed to estimate firm specific accounting function. Specifically, the following regression is estimated to compute firm level accounting function: $r_{i,t} = \alpha_0 + \alpha_1 \times E_{i,t}/M_{i,t-1} + \alpha_2 \times \Delta E_{i,t}/M_{i,t-1} + \alpha_3 \times LOSS_{it} + \alpha_4 \times LOSS_{it} \times E_{i,t}/M_{i,t-1} + \alpha_5 \times LOSS_{it} \times \Delta E_{i,t}/M_{i,t-1} + \varepsilon_{i,t}$. The sample is comprised of 27,792 firm-year observations over the period of 1990-2013. All the continuous variables are winsorized at 1 percentile and 99 percentiles. Comparability measures are decile ranked within each fiscal year and rescaled to range between [0,1]. To adjust for heteroscedasticity, standard errors are clustered by firm. The numbers in the parenthesis are t-values; *, **, and *** denote statistical significance at a 0.10, a 0.05, and a 0.01 level respectively. The variable of interest is bolded and shaded.

Table 13. Regression analysis using alternative measure of comparability: Choi et al. (2017)

Panel A: Descriptive statistics for alternative comparability measure

Variable	N	Mean	Std. Dev.	Q1	Median	Q3
$CompAcctIndmed_{i,t}$	27,450	-2.631	2.576	-3.069	-1.730	-1.088
$CompAcctIndavg_{i,t}$	27,450	-3.280	2.578	-3.723	-2.480	-1.778
$CompAcct4_{i,t}$	27,450	-0.995	1.478	-1.089	-0.419	-0.184

Panel B: Regression analysis using modified Faulkender and Wang (2005) specification

	Dependent Variable = Annual excess return $(r_{i,t} - R^{B}_{i,t})$		
	(1)CompAcctIndmed	***(2)CompAcctIndavg***	***(3)CompAcct4***
$COMPACCT_{i,t}$	0.108*** (12.22)	0.078*** (8.56)	0.085*** (9.84)
$COMPACCT_{i,t} \times \Delta C_{i,t}/M_{i,t-1}$	**0.483*** (4.27)**	**0.409*** (3.66)**	**0.353*** (3.11)**
Adj. R^2	0.181	0.178	0.178
Observations	27,450	27,450	27,450

Note: Table 12 shows the regression results about the effect of financial statement comparability on the value of cash holdings using alternative definition of comparability. In this alternative definition of comparability, Cash Flow from Operation is used instead of stock return to proxy for economic event (Choi et al. 2017). Specifically, the following regression is estimated to compute firm level accounting function: $E_{i,t}/M_{i,t-1} = \alpha_0 + \alpha_1 \times OCF_{i,t}/M_{i,t-1} + \varepsilon_{i,t}$. . The sample is comprised of 27,450 firm-year observations over the period of 1990-2013. All the continuous variables are winsorized at 1 percentile and 99 percentiles. Comparability measures are decile ranked within each fiscal year and recalled to range between [0,1]. To adjust for heteroscedasticity, standard errors are clustered by firm. The numbers in the parenthesis are t-values; *, **, and *** denote statistical significance at a 0.10, a 0.05, and a 0.01 level respectively. The variable of interest is bolded and shaded

요약(국문초록)

본 연구는 회계정보의 비교가능성이 기업 보유 현금의 시장 가치에 미치는 영향에 대해서 분석한다. 1990 년부터 2013 년까지 미국 기업의 정보를 이용해 분석한 결과, 회계정보의 비교가능성이 높은 기업들은 그렇지 않은 기업보다 보유 현금의 시장 가치가 높게 평가되는 것으로 나타났다. 또한 회계정보의 비교가능성이 높은 기업들은 비교가능성이 낮은 기업보다 (1) 보유 잉여 현금을 지출할 경우 미래 총자산이익율 (ROA)이 높았고, (2) 보유 현금 대비 자본 지출의 민감도가 높았으며, (3) 자본 지출 액의 시장 평가 금액이 높은 것으로 나타났다. 더불어 회계정보의 비교가능성이 기업 보유 현금의 시장 가치에 미치는 영향은 비금융위기 기간(1990-2007, 2010-2013)보다 금융위기 기간(2008-2009)에서 더 크게 나타났다. 위 결과는 회계 정보의 비교가능성이 잉여 현금흐름에 나타나는 대리인 문제를 해결하는 데 크게 기여한 다는 것을 보여준다.

주요어: 회계정보의 비교가능성, 보유 현금의 시장가치, 잉여현금흐름, 대리인 문제

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